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ABSTRACT

During the spring semester of 1987, the Alabama State Department of Education conducted a statewide assessment study in which all teachers and principals participated. The classroom performance of teachers was observed, and their teaching competencies were measured on low- and high-inference instruments. These measurements were to be used to establish a common standard against which each teacher in the state could be compared. This norming study was the first phase of the Alabama Performance-Based Career Incentive Program, which resulted from a law requiring that standards be derived from empirical data gathered on every teacher's performance. Data on 30,863 elementary through high school teachers were included. Instruments used to observe and gather data are briefly reviewed, and procedures for managing and processing the resulting data are discussed. An assessment of the reliability and validity of the resulting measures indicated that the reliabilities for the low-inference instrument--the Classroom Observation Record--are acceptable; an argument for the dimensionality of teaching based on a factor analysis of the results is presented. The high-inference instrument failed to discriminate among teachers. Differences in performance among sub-populations, as measured by 10 classroom competency scales, are outlined. Four flowcharts, seven graphs, and 29 data tables are included. (TJH)

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ALABAMA PERFORMANCE-BASED CAREER INCENTIVE PROGRAM

A REPORT ON THE NORMING STUDY OF THE SPRING SEMESTER, 1987

Prepared by

The Alabama CIP Project Staff

At

Georgia State University

November, 1987

TM 012 630

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ALABAMA CAREER INCENTIVE PROGRAM

A REPORT ON THE NORMING STUDY OF THE SPRING SEMESTER, 1987

INTRODUCTION

Overview

During the spring semester of 1987 the Alabama State Department of Education conducted a state-wide assessment study in which all teachers and principals participated. The classroom performance of teachers was observed and their teaching competencies were measured on low and high inference instruments. These measurements were to be used to establish a common standard or norm against which each teacher in the state could be compared.

The norming study was phase one of the Alabama Performance-Based Career Incentive Program, a program created by State Act No. 84-541. The law required that standards be derived from empirical data gathered on every teacher's performance. Such standards were to be used in classifying teachers as excellent, satisfactory, and unsatisfactory.

In this report, we summarize the methods used in the norming study and the results obtained from observation and interviews. After a brief review of the instruments used to observe and gather data, we discuss the procedures used in managing and processing the data.

The next chapter of the report addresses the question: Did these measures meet the basic standards of reliability and validity? Reliabilities for the low inference instrument, Classroom Observation Record (COR), are found to be acceptable. The high inference instrument, entitled the Evaluator Questionnaire,

failed to discriminate among teachers. The chapter also includes an argument for the dimensionality of teaching based on a factor analysis of the COR data.

The normative data are presented next. The question which is considered in this section are: Are the sub-populations different in their performance as measured by the ten classroom competencies? A comparison of means on the ten competencies is made between levels of teachers (elementary, middle, and high school) and types of teachers (regular and special education). Significant differences are found between teachers based on grade levels but not on types. Three methods of summarizing competency scores are presented with a commentary on their strengths and weaknesses. A method which sets criterion levels for the competency scores is advocated and hypothetical distributions are provided should certain criteria be adopted.

The report concludes with several recommendations for future investigation and research.

Background of the Study

In evaluating a teacher's performance, nearly all states have used as their frame of reference some fixed, pre-established criterion. Only Alabama, as far as is known, is using a norm-reference approach in evaluating its teachers. Such an approach is possible because the state has employed a measurement-based approach in gathering data. Unlike other states which have used rating scales, thereby confounding measurement and evaluation, Alabama has clearly separated the evaluation process from the measurement process.

Whereas a criterion-referenced approach requires a professional judgement and consensus before the data are gathered, with a measurement-based system of evaluation, data are gathered and analyzed first. These data then become the basis for establishing a standard of performance to which each teacher can be compared. In this way each teacher who performs in the same way will receive the same score and the same evaluation.

A norm-referenced approach provides a complete spectrum of measurements from the very lowest scores to the very highest, thereby providing the usual descriptive measures of dispersion and central tendency. These measures can then be interpreted by the decision-makers in arriving at the standards for classifying a teacher's performance.

Purpose of the Norming Study

The purpose of the norming study was to gather data on the performance of all teachers in the state of Alabama to establish a common standard against which each teacher's performance could be evaluated. From the beginning of the study, it was agreed that the performance standard was to be empirically derived from the normal distribution of scores on the competencies of all teachers. Accordingly, each teacher's performance was observed and scores were derived. Raw scores were standardized and individual teacher profiles showing scores on each competency were produced. All these data were summarized to produce descriptive data for the total population and for six sub-populations. With these data, evaluation decisions for all teachers can be made and plans for the professional development of teachers can be made.

METHOD

To conduct the norming study, it was necessary to develop two new assessment instruments and procedures to manage and process the data that was generated. A brief review of these instruments and procedures is provided here as an orientation for later chapters on the findings.

Population

All Alabama teachers observed by evaluators were eligible for inclusion in the analysis of data. Four groups of Alabama teachers, designated as specialists, did not participate in the norming study: these were Counselors, Psychometrists, Library/ Media Specialists, and Speech/Language Pathologists. Norms for these teachers will be computed on separate instruments and reported at a later date.

Data on individual teachers were excluded if these teachers were not visited two times as required by the procedures. Some data were not used because the observer failed to produce the required minimum of nine records during an observation. Other teacher data were excluded because of errors in coding the demographic information. The remaining 30,863 teachers are included in the norming study data.

Instruments

The following instruments were developed for and used in the evaluation of teachers in Alabama: the Classroom Observation Record (COR), the Pre-Observation Data form, the Post-Observation data form, and the Evaluator Questionnaire form.

The Classroom Observation Record (COR).

The COR is a low-inference observation record of classroom events, interactions, and transactions. The 117 items on the instruments are divided into two sections, A and B. Section A consists of 69 items which are specific interactions between teacher and students related to instructing, questioning, responding, and managing. Section B consists of 48 items to report general teaching behaviors or depict the classroom context. This section contains the following broad categories: predominant teaching activities, affective behaviors, and the use of materials and equipment.

The Pre-Conference Data Collection Form.

This form is used by the observer in concert with the teacher to record information about the classroom such as student exceptionalities, objectives for the lesson, the source of objectives, and the method of assessing student learning.

The Post-Observation Data Form.

This form is used after the observation in a conference with the teacher. The observer notes whether the lesson was based on the previously stated objectives and reports on other general topics which may have an influence on the lesson, such as the teacher's rate of speaking.

The Evaluator Questionnaire.

This form is used by the principal throughout the semester to assess the teacher's professional activities and development. Areas which are covered include continued professional learning,

professional service in the school system and community, student evaluation procedures, and human relations.

Procedures

Data Collection.

Two classroom observations of at least 45 minutes were conducted for each eligible teacher during the spring of 1987, using the Classroom Observation Record forms. For each classroom observation visit the evaluator completed a Pre-Conference Data Collection form, a minimum of nine Classroom Observation Records and a Post-Observation Data form.

Scheduling.

All observation visits lasted for at least 45 minutes or an entire class period whichever was longer. Two observation visits were to classes in the teacher's major area of certification or in the area in which the teacher taught for the major portion of the day. The first visit was scheduled in advance with the teacher and the evaluator agreeing on the time and date of the visit. The other visit was referred to as an announced visit. The evaluator selected the time and date of the visit and announced that a visit was to be made prior to the commencement of the school day; however, the specific time was not specified. The Evaluator Questionnaire was completed in a conference between the principal and teacher near the end of the semester after both observations had been made.

Data Management Procedures

The following procedures were followed in managing the data:

1. COR booklets were sent by the building principal in each school to the CIP Coordinator of the District.
2. CIP Coordinators would check the booklets for coding errors, stray marks, and so on. They would batch the booklets on a weekly basis, prepare a report form, and mail it to the Georgia State University CIP Project office.
3. The data processing staff recorded the shipment, re-examined the booklets, broke apart the booklets, and ran the pages through the optical scanner.
4. A electro-magnetic tape was made of the physical record. A final check of the physical record for stray marks was made by the scanning program.

Data Processing

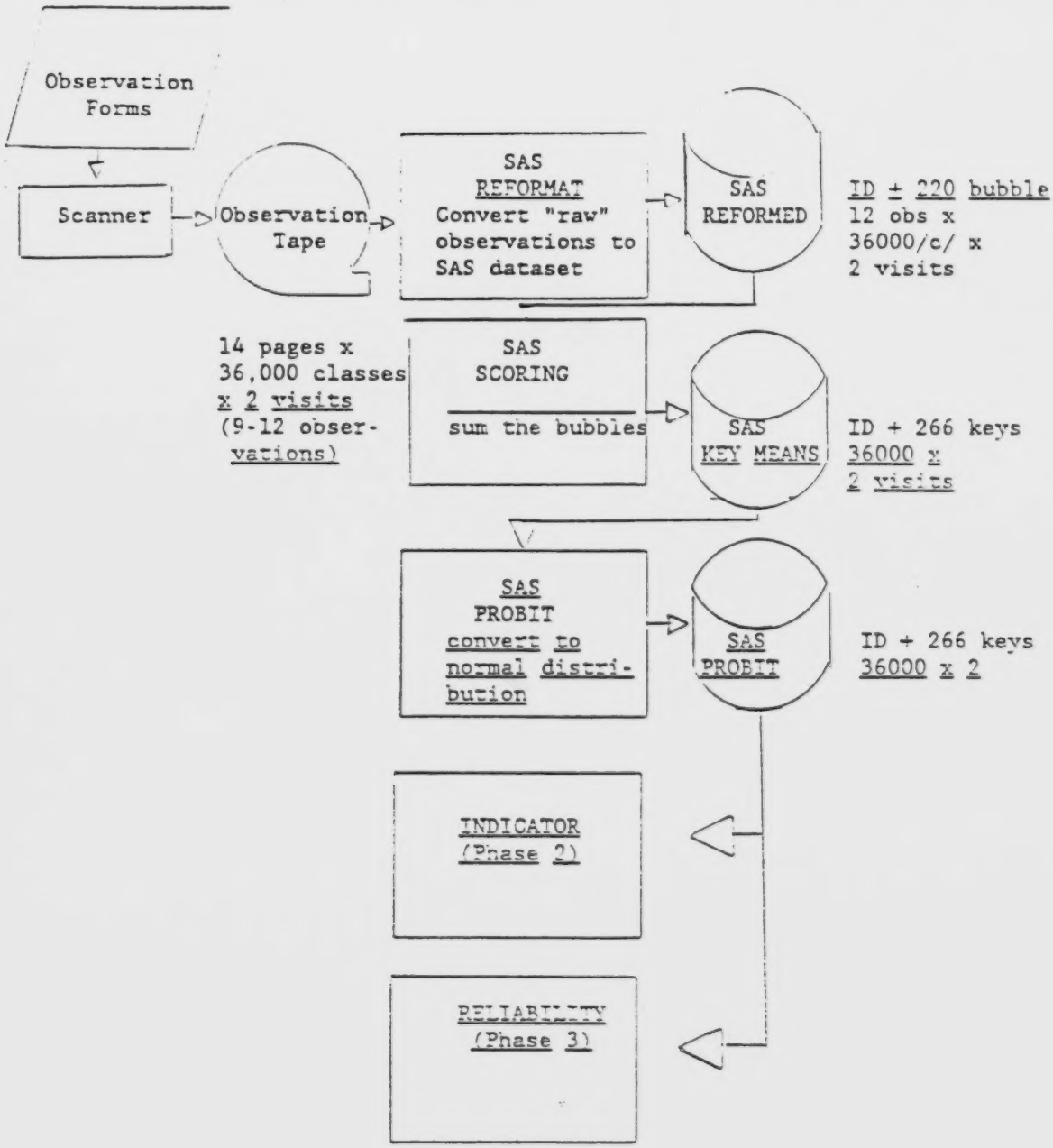
To derive a score for each competency required a complex set of computer programs. Those competencies which were measured by the COR were scored by combining items which were associated, positively or negatively, with the competency. Thus, scoring begins with the selection of items which are collectively called "scoring keys."

While developing keys for each competency is a logical process based on an understanding of the meaning of the competency, its indicators, and the items on the instrument; the transformation of the raw data (bubbles) into norm-referenced scores requires sophisticated computer programming. This transformation is graphically depicted in the flow chart (Figure 1) below.

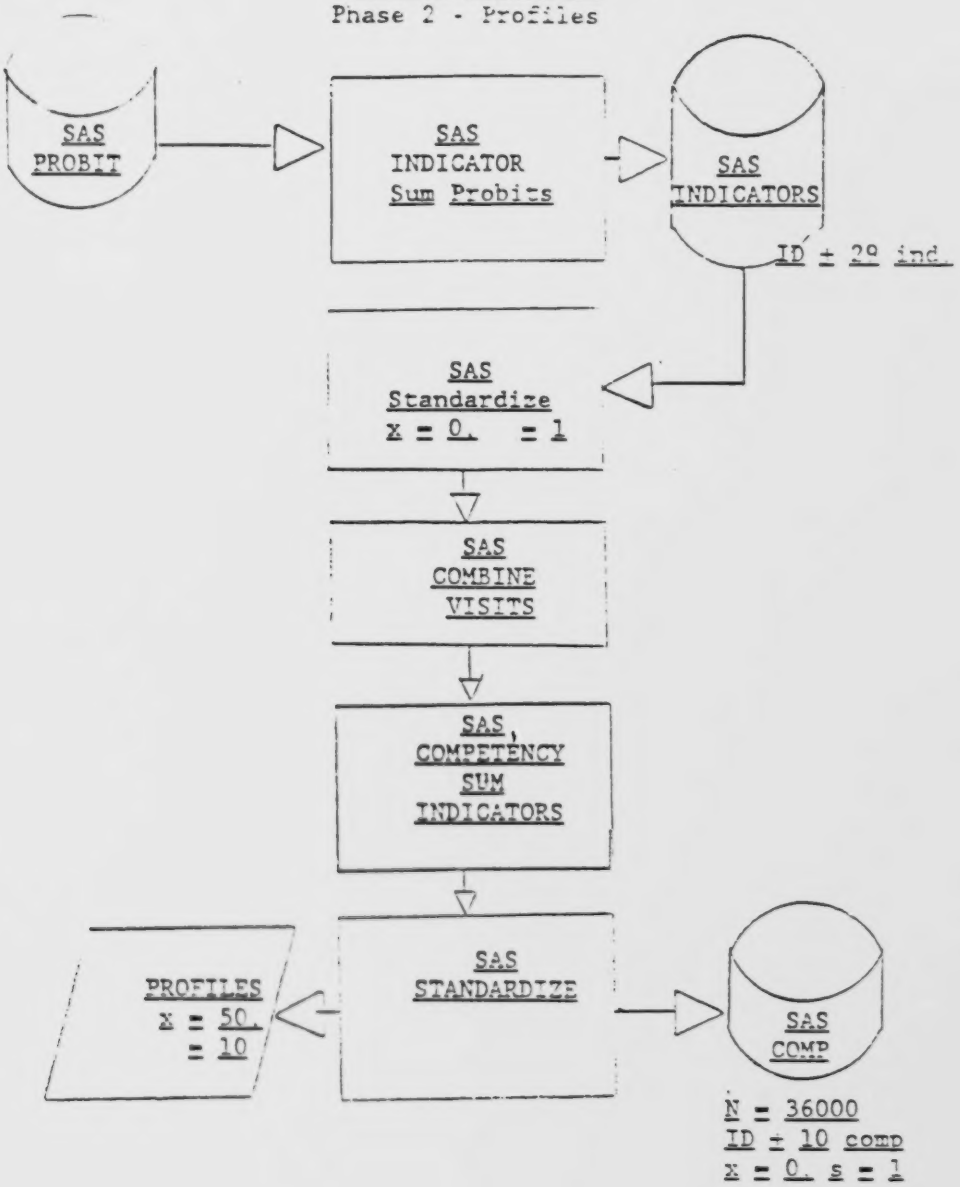
It should be noted that this process was used for the COR data. The Evaluator Questionnaire was scored in a straightforward manner simply by counting codes for the indicators and their related competencies.

FIGURE 1

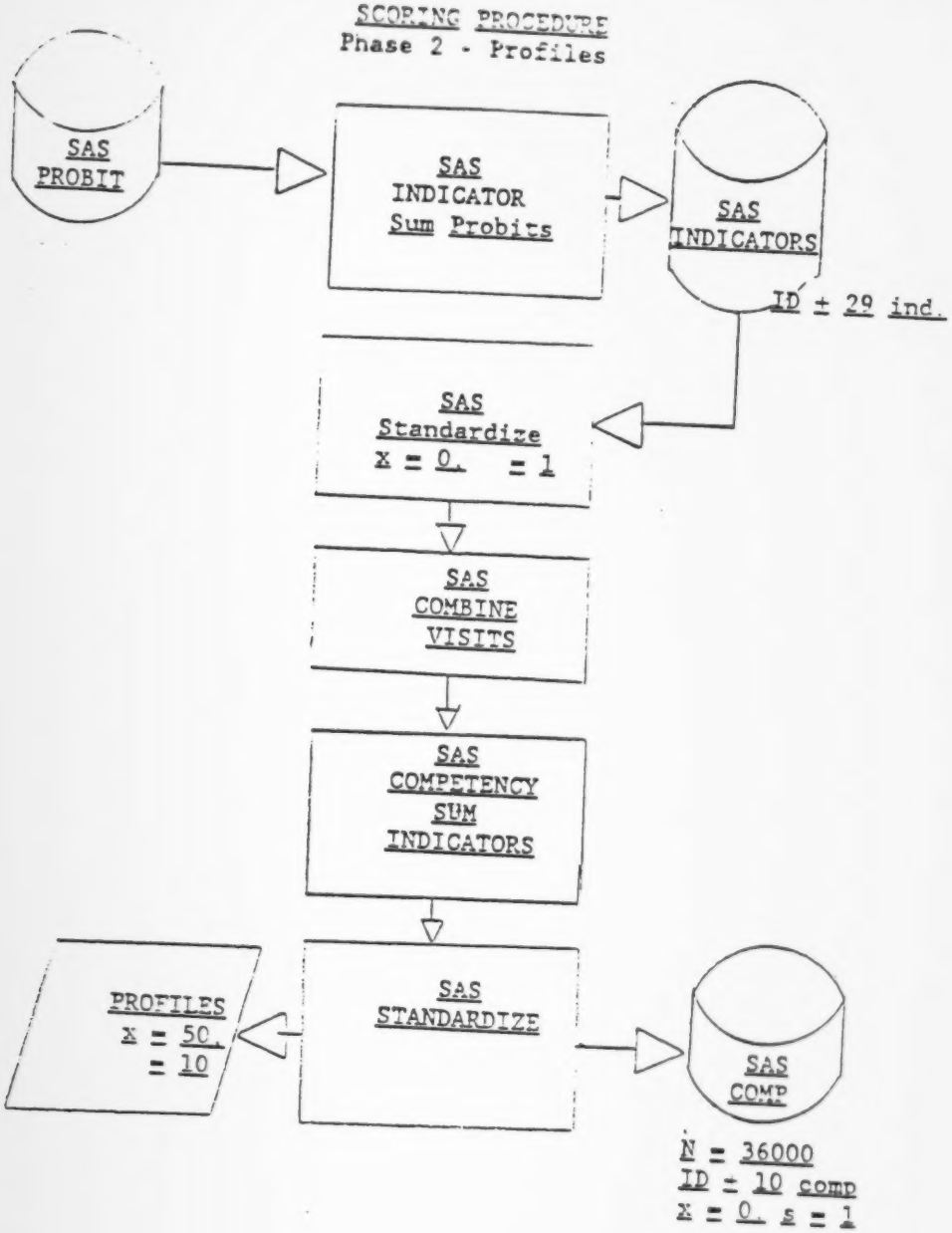
SCORING PROCEDURE
Phase I - Initial Data Reduction



SCORING PROCEDURE
Phase 2 - Profiles

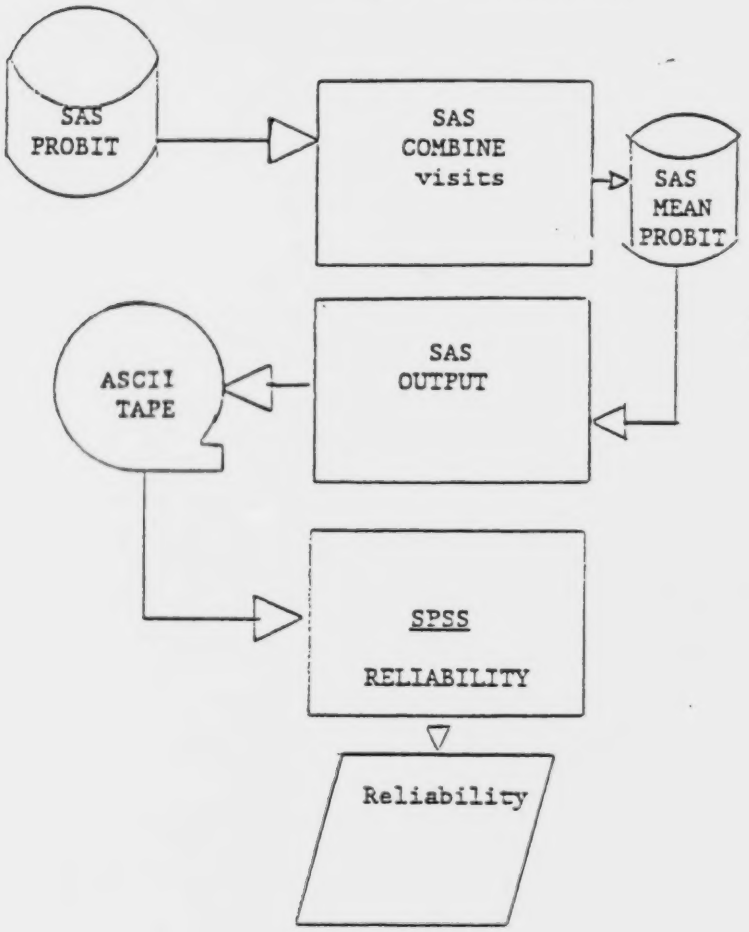


SCORING PROCEDURE
Phase 2 - Profiles



SCORING PROCEDURE

PHASE 2 - RELIABILITY



THE QUALITIES OF THE ASSESSMENT INSTRUMENTS

Before reporting individual or group descriptive data, it is necessary to determine that the instruments possess the necessary attributes of reliability and validity. Unless the instruments possess these qualities in some degree, further use of the data would be unfounded.

First, we present findings with respect to the COR - its reliability and its dimensionality. Second, we provide information pertaining to the Evaluator Questionnaire - its reliability and power to discriminate.

Reliabilities of the Classroom Observation Record

The method of determining the reliability of the COR scores was the coefficient alpha formula. This method is a measure of internal consistency of all items which contribute to the competency or indicator. Table 1 reports the alpha coefficients for the developmental group, the total group, and for each of the six sub-populations.

TABLE 1

* ALPHA VALUES FOR COMPETENCIES
BY TEACHER TYPE AND GROUP

COMPETENCY NO OF ITEMS ( )	ALPHA COEFFICIENT							
	**DEV GROUP N= (838)	ELEMENTARY REG N= (1332)	ELEMENTARY SPE N= (82)	MIDDLE REG N= (592)	MIDDLE SPE N= (65)	HIGH REG N= (788)	HIGH SPE N= (69)	*** TOTAL N= (2934)
2.0 PRESENTING ORGANIZED INSTRUCTION (37)	.85	.82	.85	.85	.79	.84	.83	.84
3.0 USING TEACHING/LEARNING MATERIALS (29)	.61	.62	.56	.58	.62	.54	.48	.59
4.0 PROVIDING FOR PRACTICE AND APPLICATION (34)	.84	.81	.81	.82	.82	.86	.85	.83
5.0 MONITORING STUDENT ACHIEVEMENT (24)	.78	.77	.74	.78	.73	.81	.81	.79
6.0 USING MONITORING DATA (31)	.83	.65	.88	.73	.83	.76	.92	.77
7.0 MANAGING CLASS TIME (27)	.77	.80	.71	.77	.72	.77	.85	.75
8.0 MAINTAINING STUDENT BEHAVIOR (6)	.63	.65	.68	.54	.70	.57	.63	.66
9.0 KNOWLEDGE OF SUBJECT MATTER (27)	.77	.77	.79	.76	.67	.76	.77	.78
10.0 MAINTAINING A POSITIVE ATMOSPHERE (30)	.70	.68	.78	.70	.66	.70	.78	.70
11.0 COMMUNICATING CLEARLY AND EFFECTIVELY (12)	.42	.45	.47	.36	.40	.28	.35	.42

* With the exception of the Developmental Study Group (see below), all sample groups represent 10% of their respective populations. Sample subjects were selected from all teachers having two completed COR's on record at the time of analysis (N=).

** DEVELOPMENTAL STUDY GROUP refers to a population of teachers on which scoring keys were partially developed and refined.

*** TOTAL refers to a stratified random sample of all teachers excluding the Developmental Study Group.

We note that the coefficients across these eight groups are remarkably consistent. Competencies Three and Six show the greatest disparity across groups with Three ranging between .48 and .62 and Six ranging between .65 and .92. Competency Eleven has the lowest set of alpha values while competency Two has the

highest set of values. In general, the values are in the acceptable range with the exception of competency eleven where the values are marginal.

Table 2 presents the alpha coefficients for the indicators for the eight different groups. Here, the values show much greater variation. Some (see 2., 3., 4.1, and 6.2) are exceptionally high. Others are very low (see 2.4, 3.2, 8.2, and 11.3). Indicators 7.3 and 11.1 have some zero values. Some of the low alpha values may be partially explained by the small number of items which contribute to the indicator, e.g. 7.3 and 11.1. Further analysis of the item intercorrelations may be needed to identify those items which are not highly correlated with the other items. These data have implications for re-examination of the definitions of the indicators as well as review of the scoring keys. Inspection of the frequency of occurrence of items is also suggested.

TABLE 2

* ALPHA VALUES FOR INDICATORS
BY TEACHER GROUP AND TYPE

INDICATOR NO. OF ITEMS ( )	**DEV GROUP	ELEMENTARY REG	ELEMENTARY SPE	MIDDLE REG	MIDDLE SPE	HIGH REG	HIGH SPE	*** TOTAL
	N= (838)	N= (1332)	N= (82)	N= (592)	N= (65)	N= (788)	N= (69)	N= (2934)
2.1 ORIENTS STUDENTS TO LESSON (4)	.50	.51	.47	.46	.40	.55	.50	.52
2.2 DEVELOPS THE LESSON (5)	.41	.40	.48	.44	.28	.54	.39	.46
2.3 QUESTIONS EFFECTIVELY (25)	.84	.82	.83	.84	.80	.83	.85	.84
2.4 REVIEWS AND SUMMARIZES CONTENT (3)	.39	.36	.59	.36	.43	.39	.38	.40
3.1 MATERIALS MATCH OBJECTIVES (8)	.38	.54	.54	.41	.38	.35	.17	.48
3.2 USES MULTISENSORY MATERIALS (3)	.21	.18	.12	.17	.38	.17	.09	.17
3.3 USES MTLS TO ACCOMODATE DIFF LEVELS/STD INTS (18)	.53	.51	.42	.55	.54	.51	.53	.52
3.4 USES MEDIA ETC.FOR INST PURPOSES (0)	DELETED							
4.1 USES GUIDED PRACTICE RELATED TO OBJES (28)	.88	.86	.87	.86	.87	.90	.89	.88
4.2 ASSIGNS INDEPENDENT STUDENT CLASSWORK OR HOMEWORK (6)	.62	.64	.57	.69	.78	.68	.67	.68

* With the exception of the Developmental Study Group (see below), all sample groups represent 10% of their respective populations. Sample subjects were selected from all teachers having two completed COR's on record at the time of analysis (N=).

** DEVELOPMENTAL STUDY GROUP refers to a population of teachers on which scoring keys were partially developed and refined.

*** TOTAL refers to a stratified random sample of all teachers excluding the Developmental Study Group.

TABLE 2 CONT'D

ALPHA COEFFICIENT

INDICATOR NO. OF ITEMS ( )	DEV GROUP N= (838)	ELEMENTARY REG N= (1332)	ELEMENTARY SPE N= (82)	MIDDLE REG N= (592)	MIDDLE SPE N= (65)	HIGH REG N= (788)	HIGH SPE N= (69)	TOTAL N= (2934)
5.1 CHECKS UNDERSTANDING THROUGH QUESTIONS (15)	.81	.79	.75	.82	.78	.83	.81	.82
5.2 CHECKS STUDENT'S PRODUCT/PROCESS (9)	.72	.67	.74	.69	.56	.67	.85	.69
6.1 PROVIDES ASSESSMENT FEEDBACK (12)	.60	.58	.60	.65	.53	.67	.72	.62
6.2 MODIFIES INST (19)	.86	.82	.76	.82	.66	.83	.96	.85
7.1 BEGINS INSTRUCTION PROMPTLY (16)	.87	.85	.87	.84	.80	.85	.92	.86
7.2 ARRANGES INST MATLS ETC. FOR USE WITHOUT DISRUPTION (9)	.51	.56	.40	.54	.66	.47	.61	.52
7.3 ENGAGES STUDUDENTS IN LEARN ACTIVITIES (2)	0	.25	0	0	0	.20	0	.18
8.1 ESTABLISHES AND MAINTAINS RULES (3)	.70	.70	.64	.61	.76	.61	.64	.68
8.2 USES DISCIPLINING STRATEGIES (3)	.37	.40	.59	.22	.48	.33	.60	.47
9.1 PRESENTS SUBJECT MATTER (6)	.71	.69	.66	.68	.56	.71	.77	.70
9.2 RESPONDS TO STUDENT QUES/ RE SUBJECT (16)	.56	.53	.60	.54	.41	.58	.71	.58
9.3 USES KNOWLEDGE OF SUBJECT MATTER TO ELABORATE (5)	.48	.50	.57	.41	.40	.49	.46	.48

TABLE 2 CONT'D

INDICATOR NO. OF ITEMS ( )	ALPHA COEFFICIENT							
	DEV GROUP N= (838)	ELEMENTARY REG N= (1332)	ELEMENTARY SPE N= (82)	MIDDLE REG N= (592)	MIDDLE SPE N= (65)	HIGH REG N= (788)	HIGH SPE N= (69)	TOTAL N= (2934)
10.1 TEA/STU AND STU/STU INTERACTION (20)	n/a	.68	.79	.71	.68	.71	.80	.70
10.2 COMMUNICATES HIGH EXPECTATIONS (1)	n/a	-	-	-	-	-	-	-
10.3 MINIMIZES NEGATIVE AFFECT (2)	.54	.56	.62	.46	.20	.49	.28	.51
10.4 EXPRESSES POSITIVE AFFECT (7)	.49	.52	.43	.45	.46	.44	.41	.53
10.5 INVOLVES MOST STUDENTS IN INTERACTION (1)	n/a	-	-	-	-	-	-	-
11.1 ORAL COMMUNICATION (2)	.81	.69	0	.95	0	.61	0	.75
11.2 WRITTEN COMMUNICATION (1)	n/a	-	-	-	-	-	-	-
11.3 GIVES CLEAR DIR (9)	.54	.46	.54	.34	.45	.37	.23	.48

Dimensionality of the COR

One of the questions of considerable importance in interpreting and using the data from the COR is the question of its structure. Does it represent teaching as falling on a single dimension--that is, are there good teachers, poor teachers and others who fall in between? Or are there some teachers high in one skill, and low in others, and other teachers with a different pattern of high and low skills?

If COR represents teaching as having a single dimension, or as a series of skills which are at least moderately strongly related, then a sum of scores for the different competencies is an appropriate way to interpret and use the results. But if the competencies show relatively low relationships from one to another, then a sum is an inappropriate way to represent the results.

There is also a question of adequacy of measurement. It is widely recognized that one of the problems of rating scales is their tendency to reflect an overall impression made on the rater, regardless of the nature of the different aspects of the person presumably being rated. This tendency for different ratings to reflect overall impression is called "halo". At least one of the major, widely used, rating systems for evaluating teaching appears primarily to be reflecting halo. In contrast, low inference observation systems typically identify a number of independent dimensions of skill. The question of the moment is whether COR looks more like a low inference instrument or like a rating scale.

This issue of the underlying structure of COR bears on how

professional development may best be carried out. To what degree does COR provide diagnostic information about a given teacher's strengths and weaknesses? If it primarily reflects a single dimension of teaching (perhaps halo), there is little help here, but if it reflects different dimensions of skill, then it may help indicate the need for specific professional development activities to strengthen the skills a teacher possesses to a lesser degree.

There are at least three ways to approach an answer to this question of how many dimensions of teaching are represented in the COR. One is to correlate the competencies. If the correlations are consistently high, then one dimension is indicated and a sum is an appropriate measure, but this sum may reflect halo and there is no diagnostic information presented. If correlations are not high, then further analysis is indicated. Another approach is to calculate an alpha coefficient, treating competencies in the same way items and indicators have been treated in earlier analyses. The question that can be answered using the alpha coefficient approach is: are competencies internally consistent, so that they can be combined into a single measure? A third procedure is factor analysis, which identifies one or more subsets of competencies which are related within subset, and indicates the relative strength of each.

Again, correlation asks how the competencies relate to each other; alpha asks whether the competencies agree sufficiently in what they measure for them to be combined into a single measure; factor analysis asks what dimensions or groupings of competencies

are present, and how they compare in strength. Each of these procedures has been applied and will be reported.

Correlations between Competencies.

The correlations between the competencies have been calculated and are shown in Table 3. Several points seem relevant to note. One is that the correlations generally range from zero to moderately high positive values (there are two negative values, but they are small). The second is that the values are generally low. Only two are as high as .50 or higher, whereas 26 are .20 or lower. This pattern of relationships appears to call into question the view that all competencies represent a single dimension of teaching. On the other hand, with a few exceptions, the competencies show moderate to substantial relations with the sum of the competencies, which offers limited support for using a sum to represent teacher skill. This support is qualified, however, by the fact that these correlations have a part-whole upward bias. For example, the correlation of Competency 2 with the sum is higher than it should be because the sum includes the score for Competency 2, and to that degree includes the correlation of Competency 2 with itself.

The results of the correlation analysis do not provide a clear answer, so further analysis is called for, using alpha factor analysis, as indicated above.

Table 3
Correlations Between Competencies

Competency Number	2	3	4	5	6	7	8	9	10	11	Sum
2 Encouraging Resp. Inquiries	1.000										
3 Using Informal/Learning Mat.	.11	1.000									
4 Prov. for Prac. & Applic.	-.04	.01	1.000								
5 Monitoring St. Behavior and Learning Use Lesson	.57	.07	.03	1.000							
6 Using Non-Verbal Info	.32	.06	.14	.43	1.000						
7 Managing Class Time Effi.	.51	.54	.01	.20	.14	1.000					
8 Establ. & Maint. Persp. St.	.12	.16	.03	.23	.18	.03	1.000				
9 Human Sexual Subj. Matter	.33	.06	.33	.15	.33	.17	-.03	1.000			
10 Warm, & Posi. Atmos.	.58	.14	.14	.31	.31	.24	.33	.32	1.000		
11 Communicating Clearly & Effectively in Classroom	.32	.07	.06	.32	.11	.41	.14	.10	.16	1.000	
Sum	.74	.31	.40	.63	.54	.56	.21	.62	.67	.44	1.000

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Internal Consistency of Competencies.

When the alpha coefficient was calculated, which describes the internal consistency of the competencies, the result was .70. This result indicates that there is an adequate common thread of what is measured running through the competencies that it would be appropriate to use a sum to describe the total set of data for each teacher. (We ignore the possibility that alpha might be increased by omitting one or more competencies, assuming for the moment that the competency set is defined by content validity. This may be an issue to keep open for future consideration, however.)

Since the correlation matrix indicated the likelihood that there were multiple dimensions present in the data of COR, the data were further explored by factor analysis. For this same reason, the data of indicators, rather than competencies were used, in order to carry out a more "fine-grained" analysis. If there are multiple dimensions in these data, it may be that a different grouping of indicators would be a better description of teaching than that proposed in the competency list from which the instrument was developed. The same content validity issue raised above would be relevant here, of course.

Factor Analysis of Indicators.

In the simplest, perhaps overly simple, terms, what the analysis does is to identify subsets of indicators which are strongly interrelated within a subset--those that all measure the same thing. But the subsets are assembled with another restriction--that the correlation from subset to subset should be

at a minimum. That is, correlations between indicators within a subset should be high, but correlations between subsets or dimensions should be low. This means in turn that if each subset of indicators is used to create a score, the correlations between these scores should in general be relatively low.

The results of the analysis are reported in tables 4, 5, 6 and 7, each of which lists the indicators which make up one of these subsets or dimensions. Each indicator will have a decimal number associated with it called a loading. These loadings can be interpreted as correlation coefficients, the correlation of each indicator with whatever that set of indicators has in common. The higher the loading, the greater the degree to which that indicator reflects the dimension or factor.

At the bottom of the column of loadings, there is another number called an eigenvalue. It represents the relative strength of that factor or dimension, or the degree to which that dimension is successful in discriminating between teachers. The larger that number is, the greater the degree to which that factor or dimension discriminates between teachers. If one eigenvalue is much larger (5 times, 10 times, or more) than the others, to that degree what the instrument as a whole is measuring is concentrated in a single dimension, probably halo.

The results which are presented represent the COR as having four dimensions that are relatively strong. Factor 1 appears to group a number of activities which involve verbal interaction between students and teacher as the primary mode of instruction. (Note that the interpretation of a factor or dimension is a subjective, interpretative process, and the reader is free to

develop his own alternative. All the analysis says is that these indicators have a common thread. What the thread may be is a matter of inference). Factor 2 suggests a pattern of instruction in which seatwork is taking place, but the teacher interacts with students, responding to questions and elaborating the meaning of the material. Factor 3 appears to reflect teacher management which is carried out in friendly, supportive fashion. Factor 4 clearly appears to be a description of teacher use of materials in instruction.

If an indicator fails to appear on one of these factors, as many do not, that does not mean they are not important--only that they did not share what was measured with other indicators to a degree that they together created a dimension.

The number and interpretation of the factors reported seems less important for the moment (and these results should be seen as provisional) as the indication that there is more than one factor present to at least some degree. In conjunction with the results of the alpha, the results suggest a common element for all competencies, but also a degree of separation into separate dimensions.

TABLE 4

Factor 1
Teacher and Student Interaction in Instruction

Indicator		Loading
2.1	Orient Student to Lesson	.66
2.2	Develop the Lesson	.73
2.3	Question Effectively	.59
2.4	Reviews and Summarizes Content	.60
5.1	Checks Understanding	.50
9.1	Presents	.61
11.3	Clear Directions	.53

Eigenvalue = 3.75

TABLE 5

Factor 2
Guided Practices with Teacher Elaboration

Indicator		Loading
2.1	Orients	.50
4.1	Uses Guided Practice	.61
9.2	Responds to Student Questions	.83
9.3	Uses Knowledge to Elaborate	.84

Eigenvalue = 2.04

TABLE 6

Factor 3
Classroom Management

Indicator		Loading
8.1	Establishes Rules	.61
8.2	Discipline Strategies	.70
10.4	Teacher Expresses Positive Affect	.75
	Eigenvalue = 2.02	

TABLE 7

Factor 4
Use of Materials in Instruction

Indicator		Loading
3.1	Materials Match Instruction	.71
3.2	Uses Multi-sensory Materials	.64
7.2	Arranges Instructional Materials	.80
	Eigenvalue = 1.78	

The Qualities of the Evaluator Questionnaire

The Evaluator Questionnaire was designed to measure the performance of teachers on competencies deemed significant in teaching and learning which were not directly observable in the classroom. The competencies are:

1.0 Preparing for Instruction
12.0 Evaluating Student Achievement
13.0 Assuming Responsibility for Development of Self and Profession
14.0 Performing Professional Responsibilities
15.0 Human Relations

Frequency of Response on Indicators

Individual indicators were analyzed to determine their contribution to the overall competency. The percent of 'yes' answers for these competencies is recorded in Table 8. Those indicators with less than 99% 'yes' are numbers 21, 22, 23, 24, 25, and 28. It should be noted that four of these indicators received over 95% 'yes' responses. Only indicator 24 of competency 13.0 received less than 90% 'yes' responses (66.9). It is evident from these results, that the use of these indicators as measures of competencies is questionable since they show no power, in general, to discriminate.

TABLE 8

PERCENTAGE OF INDICATORS CODED 'YES'
ON THE EVALUATOR QUESTIONNAIRE A

INDICATOR NUMBER	INDICATOR	PERCENT
11.0	PREPARING FOR INSTRUCTION	
1	Selects objectives from state or local course of study or other approved curriculum guide(s).	99.6
2	Uses subject matter that fits the objective.	99.8
3	States/presents long-range goals and objectives.	99.5
4	Identifies instructional strategies appropriate to the level of the learners.	99.7
5	Selects various evaluation strategies.	99.6
12.0	EVALUATING STUDENT ACHIEVEMENT	
6	Systematically measures student progress.	99.7
7	Assesses regularly.	99.8
8	Uses multiple means of assessment.	99.7
9	Make instructional decisions on the basis of student assessment results.	99.6
10	Reviews assessment results.	99.6
11	Modifies instruction based on review.	99.6
12	The teacher maintains accurate and complete records of student progress.	99.4
13	Provides feedback on achievement to students.	99.7
14	Uses report cards/progress reports/notes, etc.	99.5
15	Returns assessment products.	99.5
16	Assessment results contain meaningful feedback.	99.5
17	Discusses progress with student(s).	99.6
18	Provides feedback on student achievement to parent(s).	99.5
19	Discusses student progress with parent/guardian.	99.4
13.0	ASSUMING RESPONSIBILITY FOR DEVELOPMENT OF SELF AND PROFESSION	
20	Participates in non-required activities to develop self and the profession.	99.6
21	Participates in learned societies or professional organizations.	96.0
22	Participates in local, state, or national committees.	90.6
23	Participates in individual professional development activities.	96.9
24	Participates in required individual professional growth activities.	66.9
14.0	PERFORMING PROFESSIONAL RESPONSIBILITIES	
25	Completes clerical and fiscal records, job requirements according to timelines.	98.9
26	Adheres to written local and state board policies.	99.2

15.0	HUMAN RELATIONS	
27	Cooperates with peers, administrators, and parents.	99.5
28	Uses community resources to enhance instruction when appropriate.	98.4
29	Holds parent conferences at a time mutually convenient when initiated by teacher, or requested by parent/guardian.	99.5
30	Participates in collegial efforts without giving up individual rights to dissent or to work to effect change.	99.2

Table 9 gives the frequencies for the total population by competency. Column 1 shows the percentage of questionnaires where all indicators for the competency were coded with a "yes". Column 2 shows the percentages of questionnaires where all indicators were left "blank". Column 3 shows the percentages of questionnaires where all indicators for the competency were coded "no". Column 4 shows the percentages of questionnaires which had mixed responses.

Most of the responses on the Evaluator Questionnaire had "yes" scores for the five competencies. The range was from a low of 86.7% for PERFORMING PROFESSIONAL DUTIES to 99.9% for EVALUATING STUDENT ACHIEVEMENT. The infrequent blank or no scores contributed a total of 1.2% to the total score. Blank contributed 1% and "no" scores contributed 0.2%. Various combinations of "yes", "no" and "blank" were found on 14.2% of the competencies.

TABLE 9

DISTRIBUTION OF CODES ON EVALUATOR QUESTIONNAIRE
(BY PERCENTAGE AND NUMBER OF CODES BY COMPETENCY)

Competency Number	All Yes %	All Blank %	All No %	Mixed Responses #	
1.0	99.2	0.2	0.0	1	.6
12.0	98.4	0.1	0.0	3	1.5
13.0	86.7	0.2	0.1	40	10%
14.0	98.6	0.3	0.1	42	1.0
15.0	97.7	0.2	0.0	1	1.1

The norming study results of the Evaluator Questionnaire indicate that the instrument does not generally discriminate among teachers on any of the competencies or indicators.

Reliabilities of the Evaluator Questionnaire

The three major criteria in evaluating any measuring instrument are its validity, reliability, and practical use.

The Evaluator Questionnaire is practical in the sense that it takes very little time to administer and score.

Reliability is generally understood as the degree to which an instrument consistently measures something. Consistency of measurement is easy to understand when the same measure is used two or more times with the same people. Of course, the Evaluator Questionnaire was used only once. Therefore, another formula for determining reliability was employed. This formula yields coefficient alpha. This coefficient is similar to a split-half correlation where the first half of a measure is compared with

the second half. The complete set of 30 items were treated using the coefficient Alpha formula. The results are given in Table 10.

TABLE 10

ALPHA VALUES FOR THE EVALUATOR QUESTIONNAIRE

Total Instru-	Competency 1.0	Competency 12.0	Competency 13.0	Competency 14.0	Competency 15.0
.95	.99	.99	.69	.96	.99

The reliabilities on competencies are exceedingly high which is what would be expected from the previous review of the frequency of 'yes' responses. When one compares any part of the Evaluator Questionnaire with any other part, the comparison is very consistent because nearly all of the responses are 'yes.' The problem with the Evaluator Questionnaire is not its reliability.

The problem is its failure to discriminate among teachers. The question is: Does the instrument really measure the performance of teachers on these competencies? These data do not give us much confidence that the Evaluator Questionnaire is measuring any real-world performance. Since the instrument does not discriminate among teachers, the instrument does not serve its purpose and steps should be taken to improve it. Current data gathering and scoring procedures, which govern its use, may contribute to the validity problems.

Use of the Results.

Given the fact that the data from the Evaluator Questionnaire does not discriminate among teachers, we have decided not

to report the individual scores on the Teacher Performance Profiles. There are two reasons for this decision. First, most teachers would have the same score. Therefore, such scores would not affect their status since it would be equivalent to adding a constant. Second, those few teachers who have one or more 'no' codes would be dramatically affected by such codes. This is because the standardizing process sets the overall mean at 50 with a standard deviation of 10. Given these data, over 90% of the teachers would have a score of just over 50; however, a few teachers without all 'yes' scores would drop considerably below the mean to scores in the 20's or 30's. Such deviant scores would exaggerate the real differences in raw scores between the teachers. It would also further complicate the task of combining these scores with those of the COR. Finally, since the data possess questionable validity, there is little to be gained, and more to be lost, by reporting these data since to do so would suggest equally valid scores for all competencies.

Therefore, we strongly urge that the scores from the norming study of 1987 derived from the Evaluator Questionnaire not be used to establish norms for any teacher's performance.

Critique of the EVALUATOR QUESTIONNAIRE.

The fundamental flaw in the instrument and the procedures which govern its use is the lack of a measurement-based approach. There are two problems which contribute to its lack of power to discriminate.

1. The items of the Evaluator Questionnaire represent complex tasks which occur over time. To analyze the task,

the degree to which the task is completed, and the quality of performance is a high-inference assessment. However, the evaluator is not in a position to directly observe the teacher's performance or to secure evidence from the teacher in order to analyze the qualitative or quantitative elements of performance. The primary data source (in most cases, the only data source) is the teacher. It is quite predictable that a teacher would put the best construction on his/her performance in a conference with the principal. It is also very natural that a principal would accept the teacher's appraisal without further inquiry. However, such a procedure is far too imprecise to gather the kind of information that would identify real strengths and weaknesses of the teacher which would, in turn, be the basis for future staff development and evaluation.

2. Given the high-inference nature of the assessment, the responses are less a measurement and more a judgement. Thus, we have a rating scale, not a measurement-based instrument. Accordingly, the Evaluator Questionnaire suffers from all the usual problems associated with rating scales such as halo effect and the lack of an actual event which the score represents.

Recommendations for Improving the EVALUATOR QUESTIONNAIRE.

We offer two sets of recommendations. The first set are short-ranged and may be put into place by the fall of 1988. The two recommendations are:

1. Further explicate the items on the Evaluator

Questionnaire so that a sub-set of items (or descriptors) may be scored under each item.

2. Supportive evidence should be used to score items. This evidence should be provided by both the teacher and the principal.

A long-range plan for assessing the competencies embodied in the Evaluator Questionnaire would require at least three years to implement. The following activities are recommended:

1. Conduct a survey of teachers and administrators to determine the content validity of the competencies and their indicators. This survey should include up to 3000 cases.

2. Appoint two or three study groups representing different stake-holders in the assessment process, i.e. teachers, administrators, and higher education and/or outside consultants. Charge these groups to explicate the competencies and to establish general guidelines for conducting the assessment.

3. Conduct at least two field studies involving several school districts to provide data by means of which the different performance levels could be documented. These data would be used to 'anchor' different scoring levels. Different scoring systems and administrative procedures should also be tested.

4. Conduct a full-scale norming study over one year to establish base-line data on each competency and indicator.

USE OF THE DATA FROM THE CLASSROOM OBSERVATION

The law which created the CIP requires that teachers be classified into three levels based on their performance. The assumptions which underlie the law are:

(1) teachers differ from each other in their performance,

(2) differences between teachers can be measured, and

(3) these differences in measurements are the basis for evaluation of teachers

Having established that the COR does discriminate among teachers with acceptable levels of reliability, we may use these data with some confidence to answer the following questions:

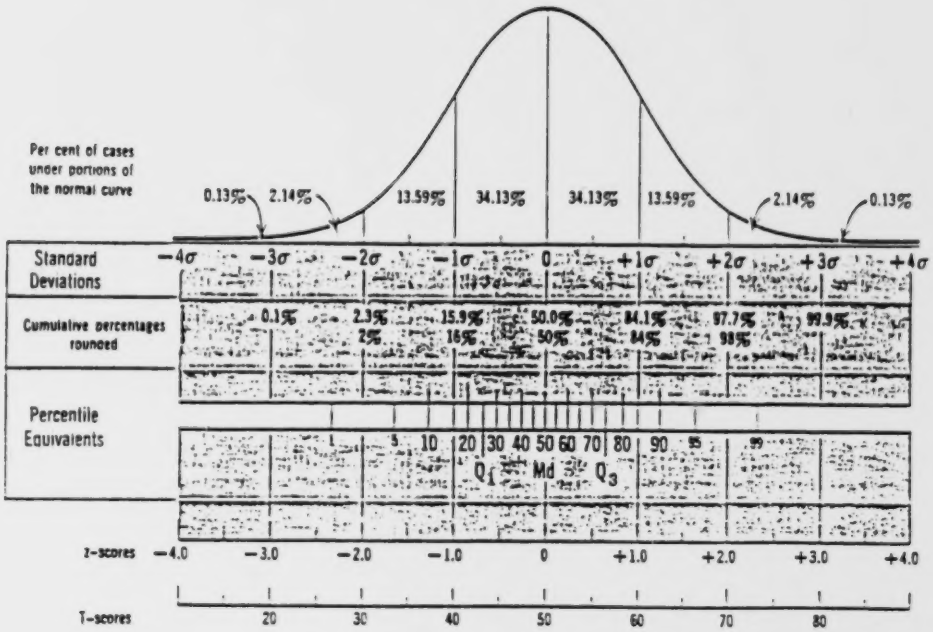
(1) What differences are found in the measures of competency?

(2) What methods are useful in assigning teachers into one of the three classes?

Differences in the Competency Measures

When raw scores from the COR are standardized, the resulting distribution of scores is a normal curve. Thus, the distribution of scores on any particular competency may be expected to appear as in Figure 2 below.

FIGURE 2
NORMAL DISTRIBUTION FOR A COMPETENCY



The scoring program transforms Z scores to T scores and sets the mean at 50 and the standard deviation at 10. By standardizing, the mean and median fall together and the distribution is symmetrical. Therefore, half of the scores will be above the mean and half will be below. Also, the proportion of scores will be close to those percentages given above for the areas under the normal curve. Although the above distribution of scores could be used to set standards, there are two problems which prevent this from being done. First, the normal curve is applicable to a single competency, not to the scores of a set of competencies; second, the model applies to the total population but not necessarily to a sub-population such as special education teachers.

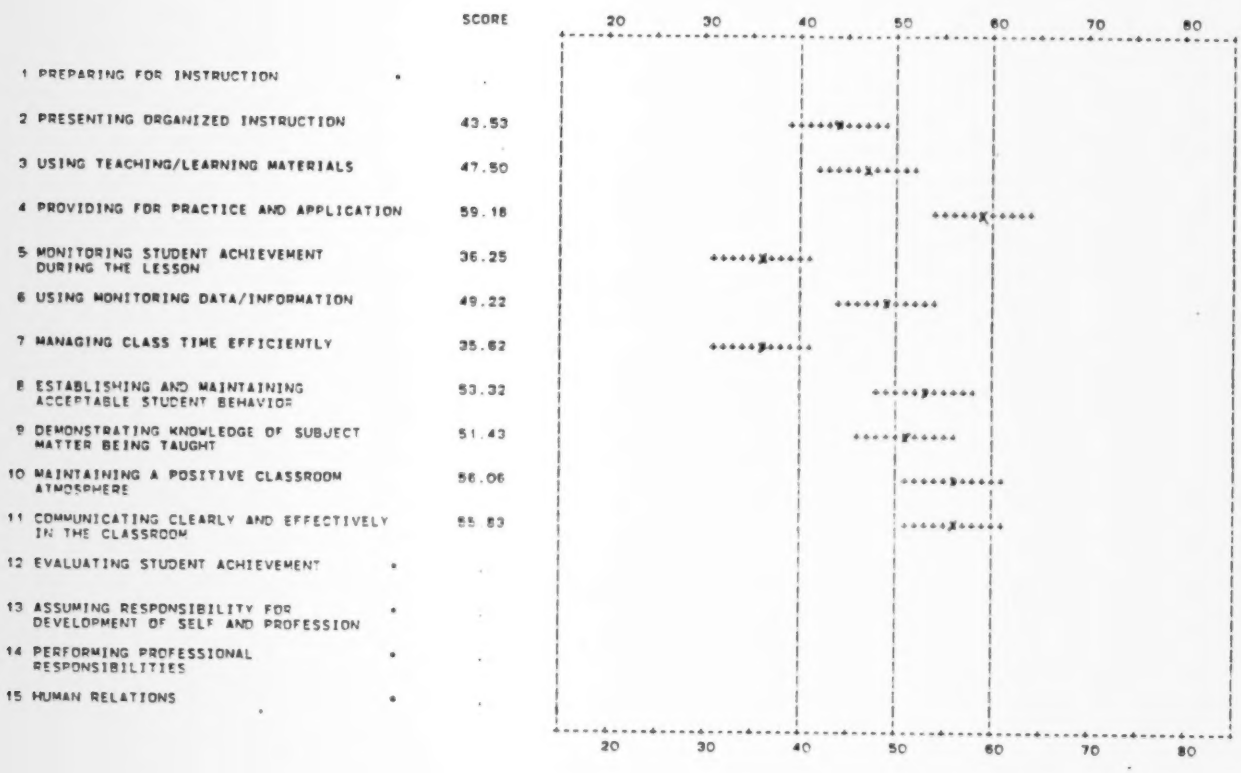
An Individual Teacher Performance Profile

The scores on the ten competencies for any particular

teacher show considerable variance, almost as much as the scores between teachers. The set of competency scores is unique and produces a profile of a teacher's performance which can be used both in evaluating the teacher and in planning professional development (Figure 3).

FIGURE 3

INDIVIDUAL TEACHER PERFORMANCE PROFILE


SCORE
20
30
40
50
60
70
80
1 PREPARING FOR INSTRUCTION
2 PRESENTING ORGANIZED INSTRUCTION 43.53
3 USING TEACHING/LEARNING MATERIALS 47.50
4 PROVIDING FOR PRACTICE AND APPLICATION 59.18
5 MONITORING STUDENT ACHIEVEMENT DURING THE LESSON 36.25
6 USING MONITORING DATA/INFORMATION 49.22
7 MANAGING CLASS TIME EFFICIENTLY 35.62
8 ESTABLISHING AND MAINTAINING ACCEPTABLE STUDENT BEHAVIOR 53.32
9 DEMONSTRATING KNOWLEDGE OF SUBJECT MATTER BEING TAUGHT 51.43
10 MAINTAINING A POSITIVE CLASSROOM ATMOSPHERE 56.06
11 COMMUNICATING CLEARLY AND EFFECTIVELY IN THE CLASSROOM 55.83
12 EVALUATING STUDENT ACHIEVEMENT
13 ASSUMING RESPONSIBILITY FOR DEVELOPMENT OF SELF AND PROFESSION
14 PERFORMING PROFESSIONAL RESPONSIBILITIES
15 HUMAN RELATIONS

In the above example, the highest score is 59.18 which is at the 82 percentile; the lowest score is 35.62 which is at the 52 percentile. It should also be noted that five of the competencies are above the mean, five are below. It should not be assumed that one could add these scores together, divide by ten, and produce an over-all mean competency score which would be normally distributed.

Competency Scores for the Six-Sub Populations

For the total population the average score across all ten competencies will be 50; however, what will the mean score be for the six sub-populations?

Table 11 summarizes the means and standard deviations for six populations.

TABLE 11

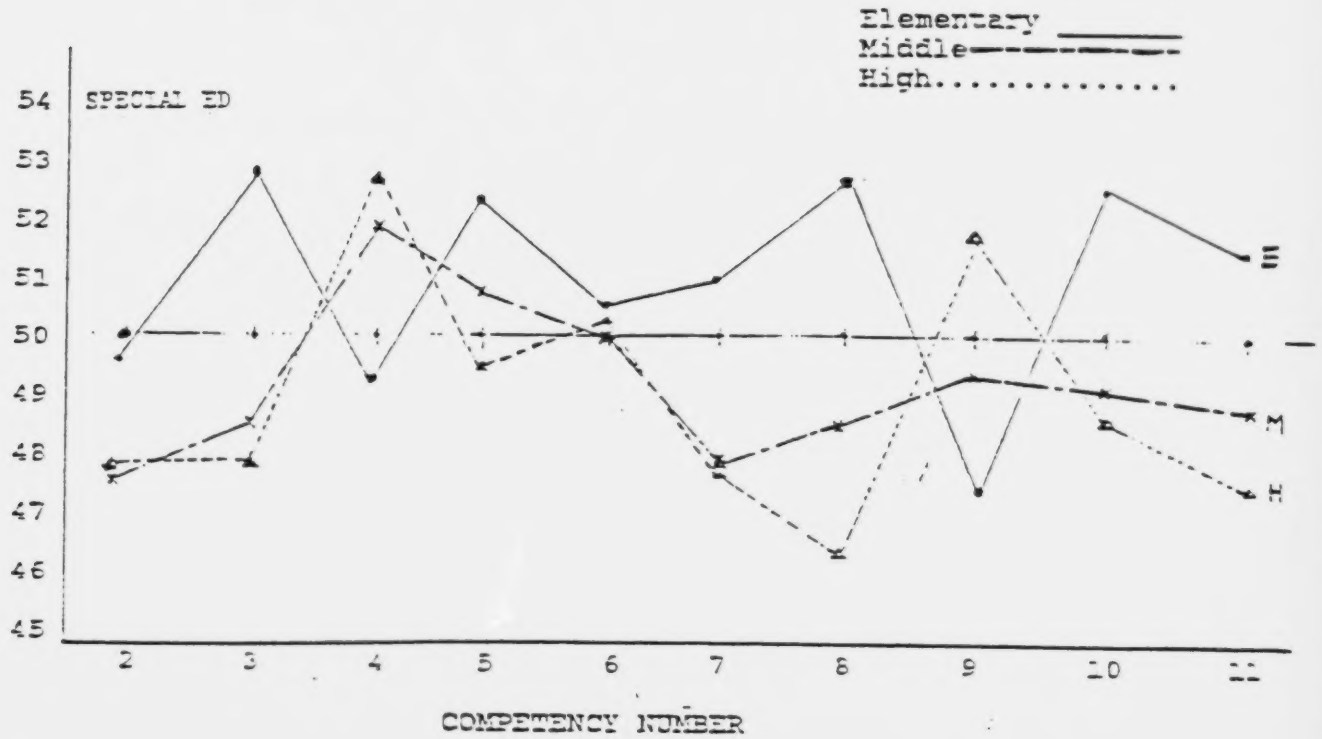
MEANS FOR EACH COMPETENCY BY SIX SUB-POPULATIONS

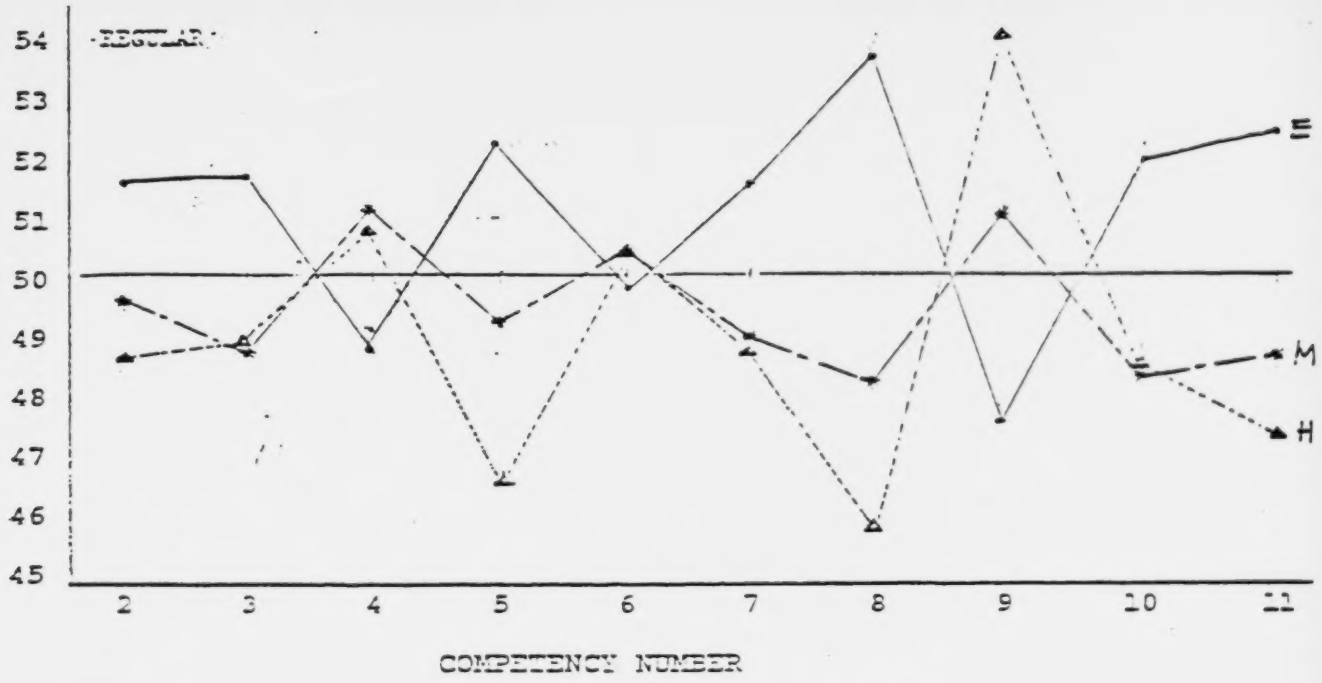
Competency	Elementary		Middle		High School	
	Reg	SPE	Reg	SPE	Reg	SPE
2.	51.5	49.4	49.6	47.4	48.4	47.6
3.	51.6	52.8	48.7	48.4	48.5	47.6
4.	48.9	49.3	51.0	51.8	50.6	52.7
5.	52.2	52.1	49.4	50.8	46.5	49.6
6.	49.9	50.2	50.1	50.0	50.1	50.2
7.	51.5	50.6	49.0	48.0	48.8	47.6
8.	53.5	52.8	48.3	48.5	45.8	46.2
9.	47.4	47.1	51.0	49.4	53.8	51.6
10.	51.7	52.7	48.3	49.1	48.4	48.3
11.	52.3	51.5	48.7	48.8	47.4	47.3

Inspection of the data reveals that the differences between levels (elementary, middle, high) are greater than the differences between regular and special education teachers. Figure 4 shows that regular teachers at the three grade levels differ markedly in their means on the ten competencies with scores on competencies 5, 8, 9, and 11 being most varied. The contrasts in means of the special education teachers is also considerable with respect to grade level. Again, the means of competencies 3, 8, 9, 10, and 11 are noticeably different.

In Figure 5 the differences in means between regular and special education teachers are graphed at each of the three grade levels.

FIGURE 4
Mean Scores: Competency Contrasted by Grade Levels
Elementary, Middle, and High School




REGULAR
54
53
52
51
50
49
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45
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4
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6
7
8
9
10
11
COMPETENCY NUMBER

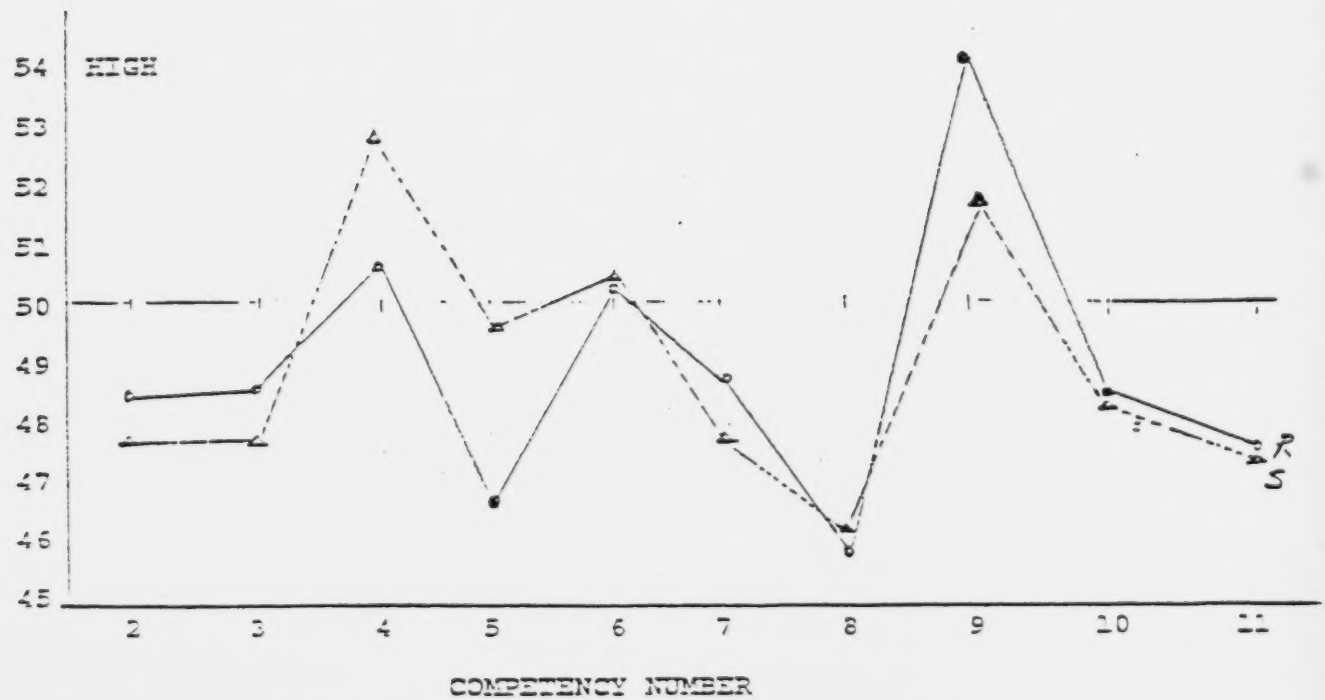
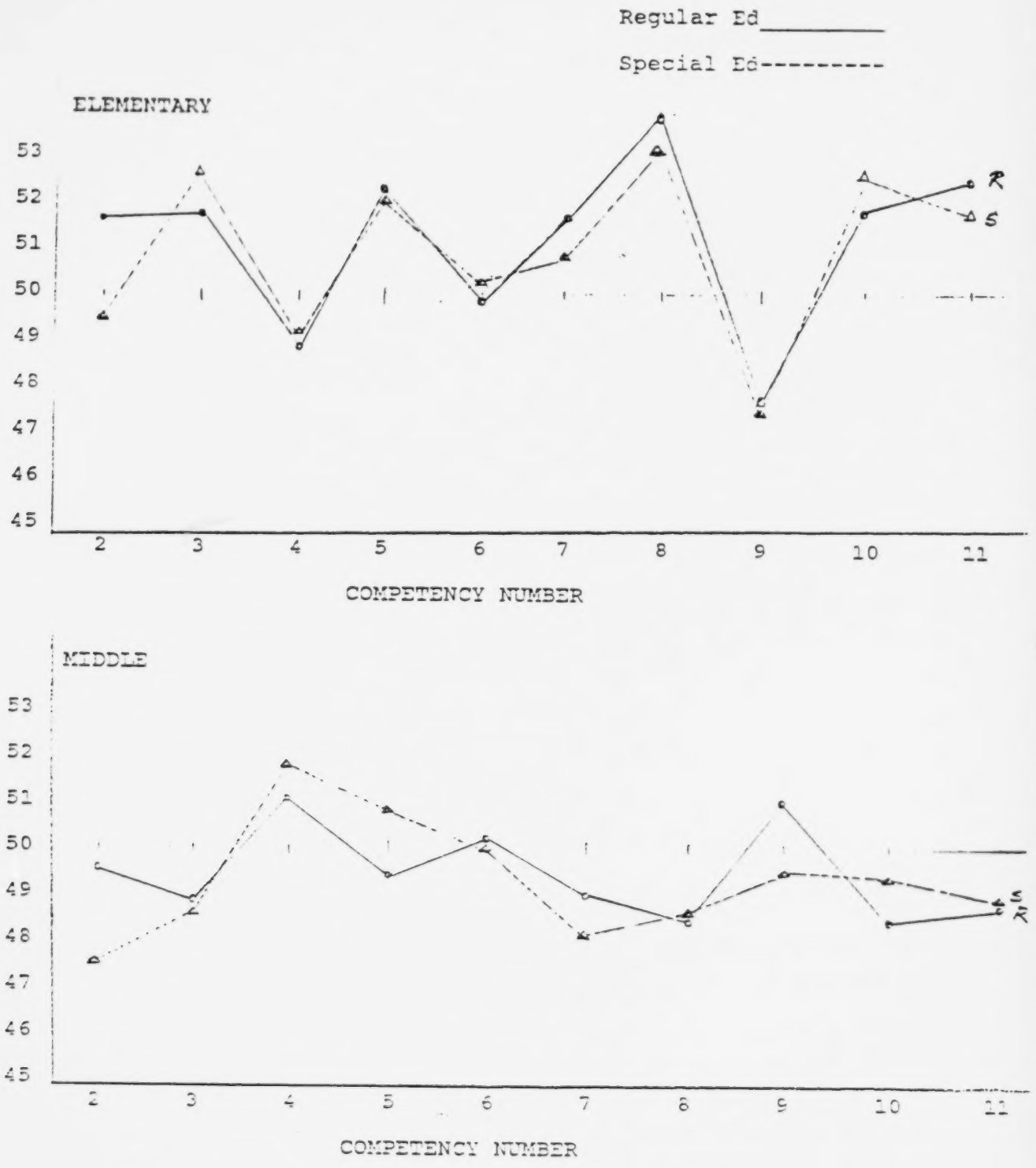

HIGH
54
53
52
51
50
49
48
47
46
45
R
S
2
3
4
5
6
7
8
9
10
11
COMPETENCY NUMBER

FIGURE 5
Mean Scores: Competency Contrasted by Teacher Type
Regular and Special Ed



It is clear that the differences between the means of regular and special education teachers at a given grade level are much less than between grade levels. Usually the two means move up and down together across the ten competencies. Especially close are the means at the elementary and middle school levels.

These data suggest that separate norms are not needed for special education teachers at any given grade level. However, the data suggest that different norms should be considered for each of the three grade levels. It appears quite clear that the most important variable influencing these data is the grade level.

In addition to these contrasts, one should note that the means for any one level differ markedly: Each level has its high means as well as low means, none of the profiles is even across the ten competencies.

Methods of Setting Standards: Composite Score

Although each score on a competency is helpful in measuring essential behaviors, the use of ten separate scores in making an assignment to a category such as "satisfactory" or "excellent" is very difficult. Therefore, we must find a way to summarize the separate scores. There are three methods of doing this.

The first, and simplest, method is to add all scores together to arrive at a composite score. This is graphically depicted below (Figure 6).

FIGURE 6

COMPOSITE SCORE METHOD

Competency Number:	2	3	4	5	6	7	8	9	10	11
Composite Score:	33	38	47	60	38	56	49	51	62	59

2 3 4 5 6 7 8 9 10
++ = 513 Composite Score

Table 12 gives the composite mean scores for the total population.

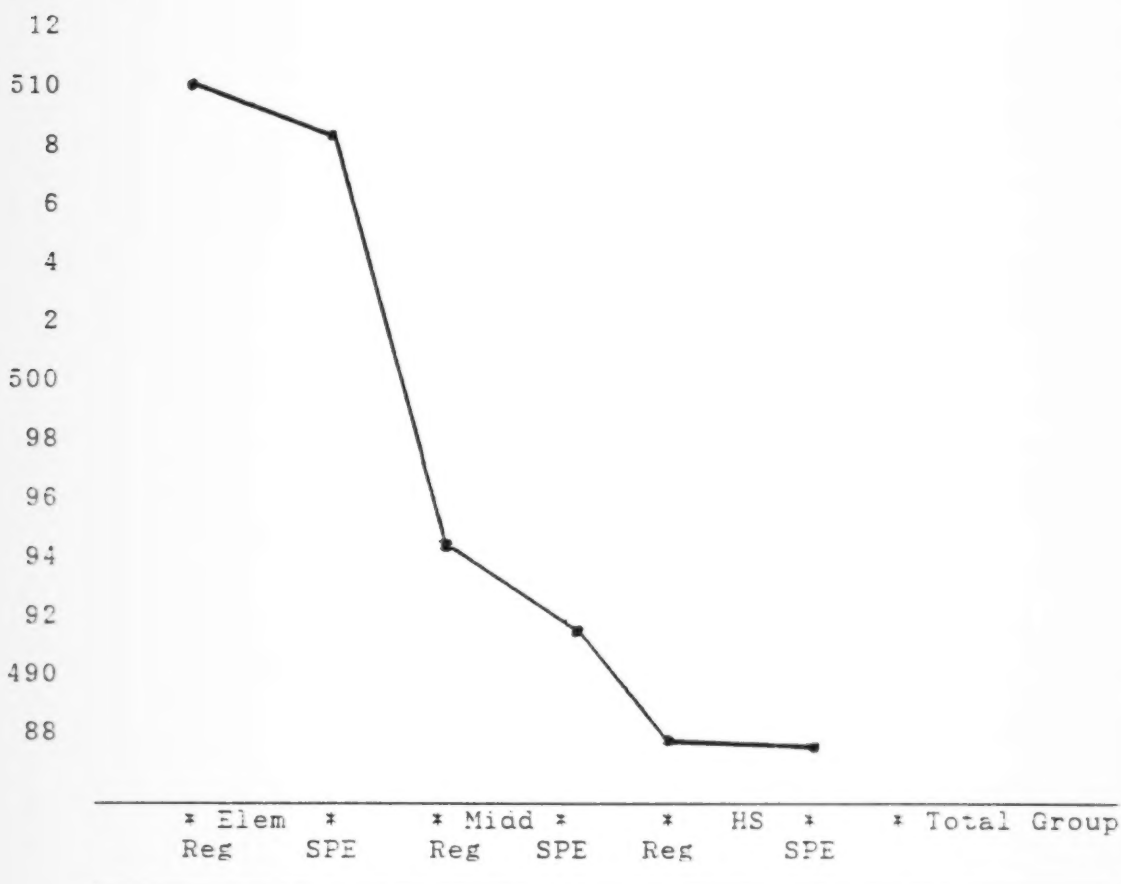
TABLE 12

MEANS AND STANDARD DEVIATIONS FOR COMPOSITE COMPETENCY SCORE BY SIX SUB-POPULATIONS

Group	N	Mean	SD
Elementary			
Reg	15,544	510.5	47.5
SPE	1,451	508.4	51.6
Middle School			
Reg	7,586	494.1	45.4
SPE	1,007	492.1	47.2
High School			
Reg	9,624	488.4	51.6
SPE	931	488.6	52.7
Total Population	30,863	500.0	48.1

Composite mean scores become increasingly lower as the grade levels go higher. The range between the highest and lowest means is about 20 points. Again, it is clear that regular and special education teachers are nearly identical at a given grade level; however, differences are found between grade levels. Figure 7 graphically reveals these composite mean score differences.

FIGURE 7
PLOT OF MEAN COMPOSITE SCORES
FOR SIX-SUB POPULATIONS



The distribution of the composite scores is shown for the whole population in Table 13. The mean score is 500; however, the median score is about 490. This discrepancy is due to the fact that there are higher scores above the median which raise the overall average.

TABLE 13

DISTRIBUTION OF COMPOSITE COMPETENCY SCORES FOR TOTAL POPULATION
Mean = 500

Range of Scores	Cumulative Frequency	Cumulative Percent
-440	2,929	9.5
441-450	4,705	15.2
451-460	6,958	22.5
461-470	9,601	31.1
471-480	12,496	40.5
481-490	15,467	50.1
491-500	18,211	59.0
501-510	20,690	67.0
511-520	22,772	73.8
521-530	24,580	79.6
531-540	25,979	84.2
541-550	27,128	87.9
551-560	28,009	90.8
561-570	28,730	93.1
571-580	29,286	94.9
581	30,863	100.0

If Method One were selected, a decision-rule must be employed to classify the performance of teachers (as measured on these competencies) as unsatisfactory, satisfactory, or excellent. For example, if a score of 440 or below was considered unsatisfactory, 9.5% or 2929 teachers would fall into this category. At the other end of the scale, one might, for example, select 561 as a minimum score in order to be rated excellent. If so, 9.2% or 2854 teachers would be classified as excellent. The

Table reveals that greatest number of teachers (about 55%) have scores between 451 and 530.

The distribution of composite scores for each of the six populations is shown in Table 14.

TABLE 14

DISTRIBUTION (CUMULATIVE PERCENT)
OF COMPOSITE COMPETENCY SCORES
BY SIX SUB POPULATIONS

Range of Scores	Elementary		Middle		High School	
	Reg	SPE	Reg	SPE	Reg	SPE
-440	5.8	8.3	12.0	14.1	15.4	17.2
441-460	15.0	18.3	25.1	30.0	31.3	32.5
461-480	30.7	35.2	43.4	47.2	50.3	52.6
481-500	49.0	50.6	62.9	66.1	68.0	67.5
501-520	65.7	66.4	77.8	78.5	80.6	80.0
521-540	78.6	78.5	87.8	88.5	88.8	88.1
541-560	87.9	87.1	93.6	93.2	94.2	92.4
561-580	93.7	92.7	96.9	95.5	96.9	95.7
581+	100.0	100.0	100.0	100.0	100.0	100.0

Here one can see that elementary teachers tend to have fewer low composite scores and more high scores than their peers at the middle and high school. Only 5.8% of the elementary teachers have a composite score below 441 whereas 12.0% of the middle school teachers and 15.4% of the high school teachers have scores below this. By contrast, more elementary teachers have scores above 541 than are found at the middle and high school levels.

Methods of Setting Standards: Counting the Number of Competencies with Scores over a Specific Criterion.

A second method of summing the competency scores is merely to count the number of scores which are over a specified criterion, (e.g. 50) among the ten competencies. By so doing, a

teacher might have from 0 to 10 competency scores over 50. For example, if a teacher had competency scores of 40, 42, 45, 50, 53, 55, 57, 59, and 60; the teacher's score over the criterion would be 6. Of course, a cut-point other than 50 could be selected; however, this seems a reasonable value since it represents a better-than-average score. This method uses the competency as the basic unit of measurement in contrast to Method One which uses a score point.

Table 15 reveals the distribution of competency scores which were over 50. Column 1 is the number of competencies with a score greater than 50. Here, we can see that 3.2% of the teachers had no scores on the ten competencies which were over 50. Reading from the cumulative percent column, we note that 24.2 of the total population had no more than 2 scores over 50. Of course, over 75% of the teachers had three or more scores over 50. On average, teachers had 4.2 competencies with scores over 50. However, less than 10% had as many as eight competencies with scores over 50.

TABLE 15

DISTRIBUTION COMPETENCY SCORES
GREATER THAN 50
BY TOTAL POPULATION
Mean = 4.2

Number of Competency Scores 50	Cumulative Frequency	Cumulative Percent
0	976	3.2
1	3,506	11.4
2	7,473	24.2
3	12,325	39.9
4	17,491	56.7
5	22,055	71.5
6	25,721	83.3
7	28,366	91.9
8	29,931	97.0
9	30,679	99.4
10	30,863	100.0

The distribution of scores which were greater than 50 for the six sub-populations is shown in Table 16. As before, elementary teachers an somewhat higher than teachers at the middle and high schools. This is clear, not only from examining the cumulative percentage values, but also from observing the mean number of competencies over 50 reported at the bottom of each column.

TABLE 16

DISTRIBUTION OF COMPETENCY SCORES
GREATER THAN 50 BY SIX SUB-POPULATIONS

Number of Competency Scores >50	Elementary		Middle		High School	
	Reg.	SPE.	Reg.	SPE.	Reg.	SPE.
0	1.1	1.9	3.1	1.7	4.6	3.7
1	5.4	5.0	11.1	11.4	14.4	14.0
2	14.2	15.4	24.6	26.8	30.3	28.8
3	27.5	30.4	40.7	42.7	47.1	46.9
4	43.0	46.7	56.8	60.4	63.5	64.3
5	59.2	62.3	72.8	74.9	77.5	78.6
6	74.6	76.3	84.6	85.9	88.0	88.7
7	86.5	87.8	93.3	93.9	95.3	94.1
8	94.4	95.7	97.6	98.0	98.7	98.3
9	98.8	99.4	99.6	99.8	99.9	99.6
10	100.0	100.0	100.0	100.0	100.0	100.0
Means	4.9	4.8	4.2	4.0	3.8	3.8

In using the criterion of scores over 50 to determine which teachers qualify for the three categories, one would need to decide how many must be over 50 for a teacher to be rated as satisfactory. Failure to reach this minimum would, of course, lead to an unsatisfactory rating. A higher standard could be set with respect to the excellent classification.

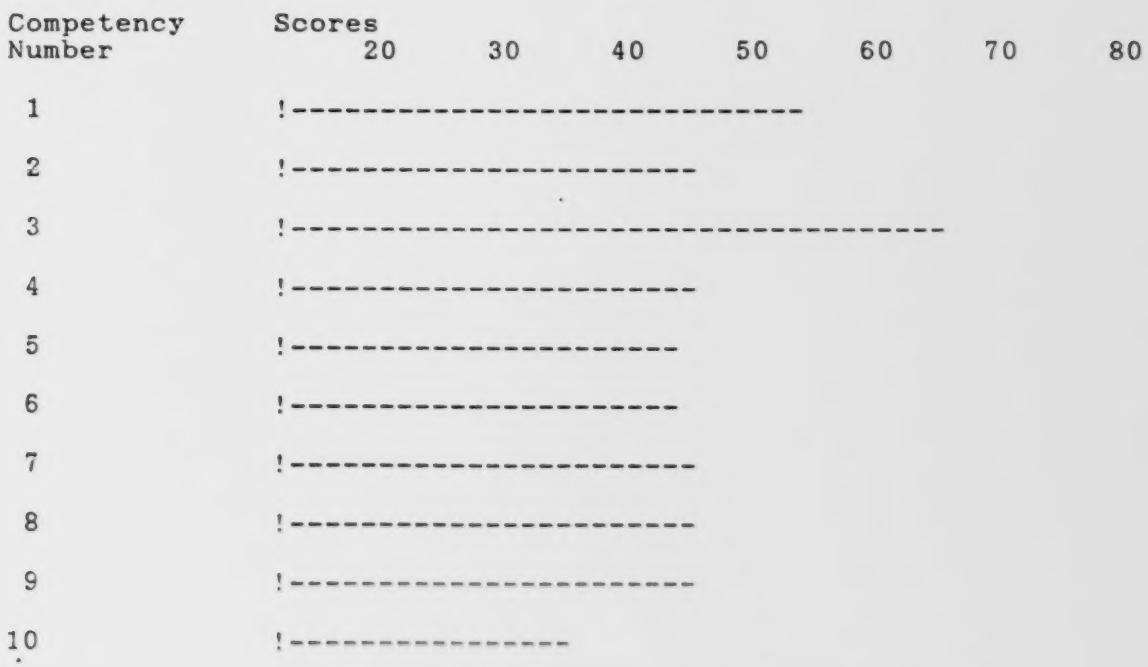
Methods of Setting Standards: Setting Lower and Upper Criteria

Method three is a variation of method two and uses two cut-points. A lower cut-point is used to establish a floor below which no score may occur if the performance is to be considered satisfactory. A second cut-point for scores is also set above which a certain number of competencies must be found. For example, a lower criterion may be set at 35. (This is 1.5 standard deviations away from the mean and is at the 7th percentile.) An upper criterion may be set at 45. In order for a teacher to be rated satisfactory, only one score could be

below 35 and some number of scores must be above 45. This is graphically represented in the figure below (Figure 8).

FIGURE 8

A SAMPLE PROFILE USING METHOD THREE
TO CLASSIFY THE PERFORMANCE CATEGORY



If the number of scores which are required at the upper criterion is 4, this teacher would fail to meet this criterion although s/he had met the lower criterion. Table 17 shows the percentage of teachers who would meet a lower criterion and how many competencies would be above an upper criterion of 45.

TABLE 17

METHOD THREE: NUMBER AND PERCENTAGE OF
ELEMENTARY TEACHERS AT TWO LEVELS

OVER35	OVER45											
FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
6	0 0.00 0.00 0.00	1 0.01 50.00 2.13	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.01 50.00 0.13	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.01
7	0 0.00 0.00 0.00	0 0.00 0.00 0.00	7 0.05 31.82 4.61	5 0.03 22.73 1.38	3 0.02 13.64 0.39	4 0.03 18.18 0.30	2 0.01 9.09 0.10	1 0.01 4.55 0.04	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	22 0.14
8	1 0.01 0.33 12.50	12 0.08 4.01 25.53	29 0.19 9.70 19.08	49 0.32 16.39 13.54	66 0.42 22.07 8.49	49 0.32 16.39 3.70	41 0.26 13.71 1.99	36 0.23 12.04 1.27	16 0.10 5.35 0.49	0 0.00 0.00 0.00	0 0.00 0.00 0.00	299 1.92
9	4 0.03 0.19 50.00	20 0.13 0.94 42.55	54 0.35 2.54 35.53	117 0.75 5.51 32.32	231 1.49 10.88 29.73	325 2.09 15.31 24.51	444 2.86 20.91 21.52	419 2.70 19.74 14.74	349 2.25 16.44 10.59	160 1.03 7.54 5.36	0 0.00 0.00 0.00	2123 13.66
10	3 0.02 0.02 37.50	14 0.09 0.11 29.79	62 0.40 0.47 40.79	191 1.23 1.46 52.76	476 3.06 3.63 61.26	948 6.10 7.24 71.49	1576 10.14 12.03 76.39	2387 15.36 18.22 83.96	2932 18.86 22.39 88.93	2825 18.17 21.57 94.64	1684 10.83 12.86 100.00	13098 84.26
TOTAL	8 0.05	47 0.30	152 0.98	362 2.33	777 5.00	1326 8.53	2063 13.27	2843 18.29	3297 21.21	2985 19.20	1684 10.83	15541 100.00

In examining this table, we discover that all these elementary teachers (N = 15544) had six or more competencies above 35; however, there were 8 (column 1) who had no competencies greater than 45. If a lower limit of 35 were used and if the teacher had to have eight of the ten scores above this limit, then 24 teachers would fail to reach this limit. If the limit were set at nine of ten competencies, then a total of 323 (2.1%) would fail. Looking at the upper limit of 45 with an expectation of four or more competencies above the limit, we find that 569 (3.7%) teachers would have from none to three competencies above 45 and that the other teachers would have four or more above 45. Using the lower criteria of 35 (9 of 10) and upper criterion of 45 (4 of 10), we would place 892 (5.7%) in the unsatisfactory category. These data are illustrative and are not intended to suggest actual cut-points or decision-rules. Tables for the other sub-populations are provided in the Appendix. These tables may also be used to determine cut-points for the excellent category since they show cut-points of over 45 by over 55 as well as the over 35 by over 45 cut-points.

Discussion of the Three Methods.

While Method One is simple and is an approach commonly used by teachers, it has a number of disadvantages both theoretical and practical. On the theoretical side, our analysis of the competencies has shown that they are not highly correlated to each other. Therefore, adding scores together from different entities using what appear to be equal units is actually more like adding a person's weight and height to estimate their size.

Another problem is that extremely high or low scores may unduly contribute to the composite score and thus disguise the general level of competence. One extreme high score and one extreme low score could result in overall "average" performance. A practical problem is the setting of cut-points. Any such decision, say to use 441, is arbitrary and difficult to defend. Why not use 440 or 442? The problem is that the unit, a score point, is not a very meaningful unit in terms of overall competency. Teachers who are on the wrong side of the cut-point may also have considerable difficulty in understanding how one point could make such a difference.

Furthermore, a single composite score does not assist the teacher or principal to plan a program to improve the teacher's classroom performance, a key element of the Alabama CIP project. The teacher and principal would be better assisted by a clear statement of the competencies that the teacher must improve to increase their performance in the classroom and to develop their own professional development program.

Method Two is somewhat more complicated when group data are being considered; however, it is very simple for a teacher or principal to apply. If the standard of Over 50 is used, a teacher merely counts the number of competencies that are above 50. The advantage of this method is that each competency is independent of any other in terms of the total score. Furthermore, the competency appears to be a more useful unit for measuring competence than the score point. Having three competencies over 50, rather than two, is more meaningful than having a score of 441 rather than 440.

The method of counting the competencies above and below 50 permits the teacher and principal to establish a Professional Development Plan that reflects specific goals in the teacher's performance. The identification of specific competencies below 50 assists the teacher to determine the competencies needing improvement. The score on the competency determines the priority among the identified competencies that should be addressed in the professional development plan. Method Three, described below, also offers an equally precise method for determining competencies that should be addressed through staff development.

Although somewhat complicated, Method Three may be useful to deal with a problem found when using Method Two. If Method Two were to be used, there is a distinct possibility that a teacher may meet the criterion on, say, six competencies but be very low on the other four competencies. Method Three is an attempt to provide greater consistency and to prevent teachers from being classified as satisfactory or excellent if they have a number of very low scores.

One final problem of setting standards is the difference between the mean scores for elementary, middle, and high school teachers. These differences are pervasive and would not disappear if one method were used instead of another. For example, if the decision were made to use Method Two with a cut-point of 50, and, if the decision were also made to require two or more competencies above 50 in order to be ranked as satisfactory, we would include 14.2% of the elementary teachers as unsatisfactory and 30.3% of the high school teachers in the same category. If one

were to use the average score for all competencies instead of 50, a more equitable distribution of scores over the criterion (average score) would result.

TABLE 18
DISTRIBUTION (CUMULATIVE %) OF OVER CRITERION SCORES BY SIX SUB-POPULATIONS

Number of Competency Scores Over Criterion	Elementary		Middle		High School	
	Reg	SPE	Reg	SPE	Reg	SPE
0	2.1	2.4	2.3	1.1	2.7	1.6
1	8.7	6.8	8.7	8.5	9.4	8.6
2	20.3	20.4	20.7	21.5	21.9	21.4
3	36.2	36.3	35.7	35.7	37.2	37.7
4	52.4	51.7	52.0	52.6	53.8	53.4
5	67.8	66.5	68.1	69.6	69.1	68.0
6	81.1	80.6	81.5	83.0	82.4	81.1
7	90.6	90.5	91.7	91.9	92.1	90.4
8	96.4	97.0	96.9	97.3	97.5	96.2
9	99.3	99.7	99.4	97.7	99.6	98.8
10	100.0	100.0	100.0	100.0	100.0	100.0

CONCLUSIONS AND RECOMMENDATIONS

This study is a retrospective of the important findings of the norming study. Based on the data presented, the following conclusions and recommendations are made:

1. The measurement of competencies using the COR is reliable; however, further refinement of both the instrument and the scoring keys is recommended in order to reach even higher levels of reliability. Further study of the extreme scores on the ten classroom competencies to determine their cause is needed.
2. The COR competencies appear to be internally consistent; however, further factor analysis should be continued to ascertain how well indicators go together under a given competency.
3. While the COR competencies possess a degree of content validity, further work needs to be done to measure the face validity of the competency measures and their criterion validity.
4. The Evaluator Questionnaire has high internal consistency or reliability as measured by coefficient Alpha. However, the validity of this instrument is suspect. Further development of the instrument and the administrative procedures should occur before the scores for individual teachers are incorporated into the composite profile of performance.
5. The normative data allows one to discriminate between the performance of teachers using one or more methods. Method Two or Method Three is recommended. These

methods count the number of competencies over an criterion rather than summing scores since the factor analysis indicates that the competencies represent different dimensions of teaching. Consideration should be given to modifying the cut-points for different populations of teachers based on the over-all average score on the competencies. Further efforts should be directed to identifying the nature of the differences and their possible causes.

The norming study is one of the most extensive efforts in education to measure the performance of teaching. Although improvements can be made, the execution of the norming study and the evidence which resulted from it are achievements which are unparalleled in educational research and evaluation.

APPENDIX I

Tables Illustrating Method Three: Lower Criterion and Upper Criterion

Table a Over 45 by Over 55 - Elementary Teachers

Table b Over 35 by Over 45 - Middle School Teachers

Table c Over 45 by Over 55 - Middle School Teachers

Table d Over 35 by Over 45 - High School Teachers

Table e Over 45 by Over 45 - High School Teachers

Table f Over 35 by Over 45 - Elementary Special Ed Teachers

Table g Over 45 by Over 55 - Elementary Special Ed Teachers

Table h Over 35 by Over 45 - Middle School Special Ed Teachers

Table i Over 45 by Over 55 - Middle School Special Ed Teachers

Table j Over 35 by Over 45 - High School Special Ed Teachers

Table k Over 45 by Over 55 - High School Special Ed Teachers

Table a

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'ELEMENTARY' SCHOOL 'NON-SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45 OVER55

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
0	8 0.05 100.00 0.51	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	8 0.05
1	35 0.23 74.47 2.22	12 0.08 25.53 0.43	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	47 0.30
2	91 0.59 59.87 5.77	49 0.32 32.24 1.74	12 0.08 7.89 0.38	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	152 0.98
3	164 1.06 45.30 10.39	148 0.95 40.88 5.25	42 0.27 11.60 1.33	8 0.05 2.21 0.30	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	362 2.33
4	236 1.52 30.37 14.96	318 2.05 40.93 11.28	170 1.09 21.88 5.37	44 0.28 5.66 1.67	9 0.06 1.16 0.43	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	777 5.00
5	295 1.90 22.25 18.69	471 3.03 35.52 16.70	382 2.46 28.81 12.08	123 0.79 9.28 4.66	51 0.33 3.85 2.44	4 0.03 0.30 0.27	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1326 8.53
TOTAL	1578 10.15	2820 18.14	3163 20.35	2641 16.99	2092 13.46	1470 9.46	909 5.85	525 3.38	251 1.61	79 0.51	15 0.10	15544 100.00

(CONTINUED)

Table a cont.

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'ELEMENTARY' SCHOOL 'NON-SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45	OVER55											
FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
6	294	600	569	377	169	50	4	0	0	0	0	2063
	1.89	3.86	3.66	2.43	1.09	0.32	0.03	0.00	0.00	0.00	0.00	13.27
	14.25	29.08	27.58	18.27	8.19	2.42	0.19	0.00	0.00	0.00	0.00	
	18.63	21.28	17.99	14.27	8.08	3.40	0.44	0.00	0.00	0.00	0.00	
7	250	597	776	620	389	149	51	11	0	0	0	2843
	1.61	3.84	4.99	3.99	2.50	0.96	0.33	0.07	0.00	0.00	0.00	18.29
	8.79	21.00	27.30	21.81	13.68	5.24	1.79	0.39	0.00	0.00	0.00	
	15.84	21.17	24.53	23.48	18.59	10.14	5.61	2.10	0.00	0.00	0.00	
8	137	405	703	737	614	410	200	78	13	0	0	3297
	0.88	2.61	4.52	4.74	3.95	2.64	1.29	0.50	0.08	0.00	0.00	21.21
	4.16	12.28	21.32	22.35	18.62	12.44	6.07	2.37	0.39	0.00	0.00	
	8.68	14.36	22.23	27.91	29.35	27.89	22.00	14.86	5.18	0.00	0.00	
9	59	181	384	540	597	529	362	215	96	22	0	2985
	0.38	1.16	2.47	3.47	3.84	3.40	2.33	1.38	0.62	0.14	0.00	19.20
	1.98	6.06	12.86	18.09	20.00	17.72	12.13	7.20	3.22	0.74	0.00	
	3.74	6.42	12.14	20.45	28.54	35.99	39.82	40.95	38.25	27.85	0.00	
10	9	39	125	192	263	328	292	221	142	57	16	1684
	0.06	0.25	0.80	1.24	1.69	2.11	1.88	1.42	0.91	0.37	0.10	10.83
	0.53	2.32	7.42	11.40	15.62	19.48	17.34	13.12	8.43	3.38	0.95	
	0.57	1.38	3.95	7.27	12.57	22.31	32.12	42.10	56.57	72.15	100.00	
TOTAL	1578	2820	3163	2641	2092	1470	909	525	251	79	16	15544
	10.15	18.14	20.35	16.99	13.46	9.46	5.85	3.38	1.61	0.51	0.10	100.00

Table b

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'MIDDLE' SCHOOL 'NON-SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER35 BY OVER45

OVER35 OVER45

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
6	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.01 50.00 0.60	0 0.00 0.00 0.00	1 0.01 50.00 0.16	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.03
7	0 0.00 0.00 0.00	2 0.03 7.69 2.38	8 0.11 30.77 4.76	10 0.13 38.46 2.66	4 0.05 15.38 0.64	2 0.03 7.69 0.23	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	26 0.34
8	5 0.07 2.62 62.50	30 0.40 15.71 35.71	22 0.29 11.52 13.10	37 0.49 19.37 9.84	30 0.40 15.71 4.82	30 0.40 15.71 3.42	24 0.32 12.57 2.00	11 0.15 5.76 0.78	2 0.03 1.05 0.15	0 0.00 0.00 0.00	0 0.00 0.00 0.00	191 2.52
9	2 0.03 0.22 25.00	23 0.30 2.52 27.38	58 0.76 6.35 34.52	104 1.37 11.38 27.66	170 2.24 18.60 27.29	167 2.20 18.27 19.04	136 1.79 14.88 11.31	127 1.67 13.89 9.02	90 1.19 9.85 6.56	37 0.49 4.05 3.74	0 0.00 0.00 0.00	914 12.05
10	1 0.01 0.02 12.50	29 0.38 0.45 34.52	79 1.04 1.22 47.02	225 2.97 3.49 59.84	418 5.51 6.48 67.09	678 8.94 10.51 77.31	1043 13.75 16.16 86.70	1270 16.74 19.68 90.20	1280 16.87 19.84 93.29	953 12.56 14.77 96.26	477 6.29 7.39 100.00	6453 85.06
TOTAL	8 0.11	84 1.11	168 2.21	376 4.96	623 8.21	877 11.56	1203 15.86	1408 18.56	1372 18.09	990 13.05	477 6.29	7586 100.00

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Table c

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'MIDDLE' SCHOOL 'NON-SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45 OVER55

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
0	8 0.11 100.00 0.60	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	8 0.11
1	74 0.98 88.10 5.56	10 0.13 11.90 0.59	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	84 1.11
2	115 1.52 68.45 8.64	45 0.59 26.79 2.66	8 0.11 4.76 0.48	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	168 2.21
3	189 2.49 50.27 14.20	132 1.74 35.11 7.81	53 0.70 14.10 3.21	2 0.03 0.53 0.17	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	376 4.96
4	263 3.47 42.22 19.76	225 2.97 36.12 13.31	104 1.37 16.69 6.29	26 0.34 4.17 2.21	5 0.07 0.80 0.61	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	623 8.21
5	217 2.86 24.74 16.30	313 4.13 35.69 18.52	250 3.30 28.51 15.12	71 0.94 8.10 6.03	24 0.32 2.74 2.93	2 0.03 0.23 0.43	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	877 11.56
TOTAL	1331 17.55	1690 22.28	1653 21.79	1178 15.53	820 10.81	469 6.18	269 3.55	118 1.56	48 0.63	7 0.09	3 0.04	7586 100.00

(CONTINUED)

Table c cont.

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'MIDDLE' SCHOOL 'NON-SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45 OVER55

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
6	205 2.70 17.04 15.40	367 4.84 30.51 21.72	309 4.07 25.69 18.69	203 2.68 16.87 17.23	92 1.21 7.65 11.22	24 0.32 2.00 5.12	3 0.04 0.25 1.12	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1203 15.86
7	147 1.94 10.44 11.04	303 3.99 21.52 17.93	410 5.40 29.12 24.80	282 3.72 20.03 23.94	172 2.27 12.22 20.98	69 0.91 4.90 14.71	24 0.32 1.70 8.92	1 0.01 0.07 0.85	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1408 18.56
8	74 0.98 5.39 5.56	195 2.57 14.21 11.54	320 4.22 23.32 19.36	306 4.03 22.30 25.98	247 3.26 18.00 30.12	149 1.96 10.86 31.77	60 0.79 4.37 22.30	16 0.21 1.17 13.56	5 0.07 0.36 10.42	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1372 18.09
9	33 0.44 3.33 2.48	82 1.08 8.28 4.85	158 2.08 15.96 9.56	220 2.90 22.22 18.68	196 2.58 19.80 23.90	134 1.77 13.54 28.57	95 1.25 9.60 35.32	53 0.70 5.35 44.92	16 0.21 1.62 33.33	3 0.04 0.30 42.86	0 0.00 0.00 0.00	990 13.05
10	6 0.08 1.26 0.45	18 0.24 3.77 1.07	41 0.54 8.60 2.48	68 0.90 14.26 5.77	84 1.11 17.61 10.24	91 1.20 19.08 19.40	87 1.15 18.24 32.34	48 0.63 10.06 40.68	27 0.36 5.66 56.25	4 0.05 0.84 57.14	3 0.04 0.63 100.00	477 6.29
TOTAL	1331 17.55	1690 22.28	1653 21.79	1178 15.53	820 10.81	469 6.18	269 3.55	118 1.56	48 0.63	7 0.09	3 0.04	7586 100.00

Table d

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'HIGH' SCHOOL 'NON-SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER35 BY OVER45

OVER35 / OVER45	0	1	2	3	4	5	6	7	8	9	10	TOTAL
6	1	3	1	0	0	0	0	0	0	0	0	5
	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
	20.00	60.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2.94	2.24	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7	5	13	7	12	5	1	1	0	0	0	0	44
	0.05	0.14	0.07	0.12	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.46
	11.36	29.55	15.91	27.27	11.36	2.27	2.27	0.00	0.00	0.00	0.00	
	14.71	9.70	2.13	1.90	0.53	0.08	0.06	0.00	0.00	0.00	0.00	
8	11	34	45	55	52	42	22	17	3	0	0	281
	0.11	0.35	0.47	0.57	0.54	0.44	0.23	0.18	0.03	0.00	0.00	2.92
	3.91	12.10	16.01	19.57	18.51	14.95	7.83	6.05	1.07	0.00	0.00	
	32.35	25.37	13.68	8.73	5.49	3.22	1.27	0.98	0.20	0.00	0.00	
9	7	33	111	177	215	222	201	157	116	41	0	1280
	0.07	0.34	1.15	1.84	2.23	2.31	2.09	1.63	1.21	0.43	0.00	13.30
	0.55	2.58	8.67	13.83	16.80	17.34	15.70	12.27	9.06	3.20	0.00	
	20.59	24.63	33.74	28.10	22.68	17.02	11.63	9.01	7.76	4.27	0.00	
10	10	51	165	386	676	1039	1504	1569	1376	920	318	8014
	0.10	0.53	1.71	4.01	7.02	10.80	15.63	16.30	14.30	9.56	3.30	83.27
	0.12	0.64	2.06	4.82	8.44	12.96	18.77	19.58	17.17	11.48	3.97	
	29.41	38.06	50.15	61.27	71.31	79.68	87.04	90.02	92.04	95.73	100.00	
TOTAL	34	134	329	630	948	1304	1728	1743	1495	961	318	9624
	0.35	1.39	3.42	6.55	9.85	13.55	17.96	18.11	15.53	9.99	3.30	100.00

Table e

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'HIGH' SCHOOL 'NON-SPECIAL-ED' TEACHERS.
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45 OVER55

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
0	34	0	0	0	0	0	0	0	0	0	0	34
	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35
	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1	113	21	0	0	0	0	0	0	0	0	0	134
	1.17	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39
	84.33	15.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	6.01	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	226	84	19	0	0	0	0	0	0	0	0	329
	2.35	0.87	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42
	68.69	25.53	5.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	12.01	3.67	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	307	212	99	12	0	0	0	0	0	0	0	630
	3.19	2.20	1.03	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.55
	48.73	33.65	15.71	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	16.32	9.27	4.79	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	334	364	201	44	5	0	0	0	0	0	0	948
	3.47	3.78	2.09	0.46	0.05	0.00	0.00	0.00	0.00	0.00	0.00	9.85
	35.23	38.40	21.20	4.64	0.53	0.00	0.00	0.00	0.00	0.00	0.00	
	17.76	15.91	9.72	3.14	0.56	0.00	0.00	0.00	0.00	0.00	0.00	
5	312	468	341	143	35	5	0	0	0	0	0	1304
	3.24	4.86	3.54	1.49	0.36	0.05	0.00	0.00	0.00	0.00	0.00	13.55
	23.93	35.89	26.15	10.97	2.68	0.38	0.00	0.00	0.00	0.00	0.00	
	16.59	20.45	16.49	10.20	3.91	0.84	0.00	0.00	0.00	0.00	0.00	
TOTAL	1881	2288	2068	1402	894	592	329	123	39	6	2	9624
	19.54	23.77	21.49	14.57	9.29	6.15	3.42	1.28	0.41	0.06	0.02	100.00

(CONTINUED)

Table e cont.

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'HIGH' SCHOOL 'NON-SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45 OVER55

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
6	289 3.00 16.72 15.36	510 5.30 29.51 22.29	488 5.07 28.24 23.60	283 2.94 16.38 20.19	127 1.32 7.35 14.21	28 0.29 1.62 4.73	3 0.03 0.17 0.91	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1728 17.96
7	160 1.66 9.18 8.51	358 3.72 20.54 15.65	461 4.79 26.45 22.29	362 3.76 20.77 25.82	221 2.30 12.68 24.72	121 1.26 6.94 20.44	52 0.54 2.98 15.81	8 0.08 0.46 6.50	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1743 18.11
8	77 0.80 5.15 4.09	180 1.87 12.04 7.87	295 3.07 19.73 14.26	336 3.49 22.47 23.97	267 2.77 17.86 29.87	203 2.11 13.58 34.29	97 1.01 6.49 29.48	32 0.33 2.14 26.02	8 0.08 0.54 20.51	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1495 15.53
9	27 0.28 2.81 1.44	78 0.81 8.12 3.41	139 1.44 14.46 6.72	185 1.92 19.25 13.20	181 1.88 18.83 20.25	164 1.70 17.07 27.70	112 1.16 11.65 34.04	58 0.60 6.04 47.15	14 0.15 1.46 35.90	3 0.03 0.31 50.00	0 0.00 0.00 0.00	961 9.99
10	2 0.02 0.63 0.11	13 0.14 4.09 0.57	25 0.26 7.86 1.21	37 0.38 11.64 2.64	58 0.60 18.24 6.49	71 0.74 22.33 11.99	65 0.68 20.44 19.76	25 0.26 7.86 20.33	17 0.18 5.35 43.59	3 0.03 0.94 50.00	2 0.02 0.63 100.00	318 3.30
TOTAL	1881 19.54	2288 23.77	2068 21.49	1402 14.57	894 9.29	592 6.15	329 3.42	123 1.28	39 0.41	6 0.06	2 0.02	9624 100.00

Table f

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'ELEMENTARY' SCHOOL 'SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER35 BY OVER45

OVER35 OVER45

FREQUENCY PERCENT ROW PCT COL PCT	1	2	3	4	5	6	7	8	9	10	TOTAL
6	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.07 100.00 2.13	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.07
7	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.07 50.00 2.13	0 0.00 0.00 0.00	0 0.00 0.00 0.00	1 0.07 50.00 0.42	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.14
8	1 0.07 1.72 12.50	6 0.41 10.34 30.00	3 0.21 5.17 6.38	13 0.90 22.41 12.15	17 1.17 29.31 10.63	13 0.90 22.41 5.46	5 0.34 8.62 2.10	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	58 4.00
9	3 0.21 1.03 37.50	7 0.48 2.40 35.00	22 1.52 7.53 46.81	35 2.41 11.99 32.71	53 3.65 18.15 33.13	69 4.76 23.63 28.99	52 3.58 17.81 21.85	35 2.41 11.99 12.54	16 1.10 5.48 6.67	0 0.00 0.00 0.00	292 20.12
10	4 0.28 0.36 50.00	7 0.48 0.64 35.00	20 1.38 1.82 42.55	59 4.07 5.37 55.14	90 6.20 8.20 56.25	155 10.68 14.12 65.13	181 12.47 16.48 76.05	244 16.82 22.22 87.46	224 15.44 20.40 93.33	114 7.86 10.38 100.00	1098 75.67
TOTAL	8 0.55	20 1.38	47 3.24	107 7.37	160 11.03	238 16.40	238 16.40	279 19.23	240 16.54	114 7.86	1451 100.00

Table g

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'ELEMENTARY' SCHOOL 'SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45 OVER55

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
1	7 0.48 87.50 5.38	1 0.07 12.50 0.36	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	8 0.55
2	11 0.76 55.00 8.46	6 0.41 30.00 2.17	3 0.21 15.00 1.09	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	20 1.38
3	20 1.38 42.55 15.38	14 0.96 29.79 5.07	11 0.76 23.40 3.99	2 0.14 4.26 0.74	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	47 3.24
4	30 2.07 28.04 23.08	43 2.96 40.19 15.58	23 1.59 21.50 8.33	9 0.62 8.41 3.35	2 0.14 1.87 1.05	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	107 7.37
5	23 1.59 14.38 17.69	55 3.79 34.38 19.93	46 3.17 28.75 16.67	27 1.86 16.88 10.04	6 0.41 3.75 3.16	3 0.21 1.88 2.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	160 11.03
TOTAL	130 8.96	276 19.02	276 19.02	269 18.54	190 13.09	150 10.34	82 5.65	45 3.10	21 1.45	11 0.76	1 0.07	1451 100.00

(CONTINUED)

Table g cont.

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'ELEMENTARY' SCHOOL 'SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45	OVER55											
FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
6	21 1.45 8.82 16.15	77 5.31 32.35 27.90	63 4.34 26.47 22.83	36 2.48 15.13 13.38	27 1.86 11.34 14.21	14 0.96 5.88 9.33	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	238 16.40
7	8 0.55 3.36 6.15	38 2.62 15.97 13.77	53 3.65 22.27 19.20	61 4.20 25.63 22.68	45 3.10 18.91 23.68	22 1.52 9.24 14.67	7 0.48 2.94 8.54	4 0.28 1.68 8.89	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	238 16.40
8	7 0.48 2.51 5.38	29 2.00 10.39 10.51	50 3.45 17.92 18.12	76 5.24 27.24 28.25	50 3.45 17.92 26.32	42 2.89 15.05 28.00	18 1.24 6.45 21.95	4 0.28 1.43 8.89	3 0.21 1.08 14.29	0 0.00 0.00 0.00	0 0.00 0.00 0.00	279 19.23
9	2 0.14 0.83 1.54	10 0.69 4.17 3.62	19 1.31 7.92 6.88	50 3.45 20.83 18.59	47 3.24 19.58 24.74	42 2.89 17.50 28.00	36 2.48 15.00 43.90	18 1.24 7.50 40.00	12 0.83 5.00 57.14	4 0.28 1.67 36.36	0 0.00 0.00 0.00	240 16.54
10	1 0.07 0.88 0.77	3 0.21 2.63 1.09	8 0.55 7.02 2.90	8 0.55 7.02 2.97	13 0.90 11.40 6.84	27 1.86 23.68 18.00	21 1.45 18.42 25.61	19 1.31 16.67 42.22	6 0.41 5.26 28.57	7 0.48 6.14 63.64	1 0.07 0.88 100.00	114 7.86
TOTAL	130 8.96	276 19.02	276 19.02	269 18.54	190 13.09	150 10.34	82 5.65	45 3.10	21 1.45	11 0.76	1 0.07	1451 100.00

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Table h

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'MIDDLE' SCHOOL 'SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER35 BY OVER45

OVER35 OVER45

FREQUENCY PERCENT ROW PCT COL PCT	1	2	3	4	5	6	7	8	9	10	TOTAL
7	0 0.00 0.00 0.00	2 0.20 40.00 6.45	0 0.00 0.00 0.00	1 0.10 20.00 1.10	1 0.10 20.00 0.72	1 0.10 20.00 0.55	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	5 0.50
8	2 0.20 6.06 40.00	6 0.60 18.18 19.35	10 0.99 30.30 15.15	5 0.50 15.15 5.49	7 0.70 21.21 5.07	2 0.20 6.06 1.10	1 0.10 3.03 0.56	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	33 3.28
9	1 0.10 0.53 20.00	11 1.09 5.82 35.48	19 1.89 10.05 28.79	38 3.77 20.11 41.76	36 3.57 19.05 26.09	34 3.38 17.99 18.78	25 2.48 13.23 13.89	16 1.59 8.47 10.39	9 0.89 4.76 8.26	0 0.00 0.00 0.00	189 18.77
10	2 0.20 0.26 40.00	12 1.19 1.54 38.71	37 3.67 4.74 56.06	47 4.67 6.03 51.65	94 9.33 12.05 68.12	144 14.30 18.46 79.56	154 15.29 19.74 85.56	138 13.70 17.69 89.61	100 9.93 12.82 91.74	52 5.16 6.67 100.00	780 77.46
TOTAL	5 0.50	31 3.08	66 6.55	91 9.04	138 13.70	181 17.97	180 17.87	154 15.29	109 10.82	52 5.16	1007 100.00

Table 1

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'MIDDLE' SCHOOL 'SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45 OVER55

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	TOTAL
1	3 0.30 60.00 1.92	2 0.20 40.00 0.77	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	5 0.50
2	18 1.79 58.06 11.54	12 1.19 38.71 4.60	1 0.10 3.23 0.45	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	31 3.08
3	26 2.58 39.39 16.67	27 2.68 40.91 10.34	11 1.09 16.67 4.93	2 0.20 3.03 1.48	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	66 6.55
4	33 3.28 36.26 21.15	33 3.28 36.26 12.64	21 2.09 23.08 9.42	3 0.30 3.30 2.22	1 0.10 1.10 0.86	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	91 9.04
5	25 2.48 18.12 16.03	65 6.45 47.10 24.90	33 3.28 23.91 14.80	9 0.89 6.52 6.67	6 0.60 4.35 5.17	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	138 13.70
TOTAL	156 15.49	261 25.92	223 22.14	135 13.41	116 11.52	53 5.26	40 3.97	16 1.59	6 0.60	1 0.10	1007 100.00

(CONTINUED)

Table I cont.

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'MIDDLE' SCHOOL 'SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45	OVER55										
FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	TOTAL
6	25 2.48 13.81 16.03	46 4.57 25.41 17.62	58 5.76 32.04 26.01	25 2.48 13.81 18.52	22 2.18 12.15 18.97	5 0.50 2.76 9.43	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00	181 17.97
7	17 1.69 9.44 10.90	48 4.77 26.67 18.39	46 4.57 25.56 20.63	33 3.28 18.33 24.44	19 1.89 10.56 16.38	11 1.09 6.11 20.75	5 0.50 2.78 12.50	1 0.10 0.56 6.25	0 0.00 0.00 0.00	0 0.00 0.00	180 17.87
8	5 0.50 3.25 3.21	22 2.18 14.29 8.43	30 2.98 19.48 13.45	33 3.28 21.43 24.44	29 2.88 18.83 25.00	13 1.29 8.44 24.53	15 1.49 9.74 37.50	7 0.70 4.55 43.75	0 0.00 0.00 0.00	0 0.00 0.00	154 15.29
9	4 0.40 3.67 2.56	4 0.40 3.67 1.53	18 1.79 16.51 8.07	22 2.18 20.18 16.30	25 2.48 22.94 21.55	16 1.59 14.68 30.19	13 1.29 11.93 32.50	5 0.50 4.59 31.25	2 0.20 1.83 33.33	0 0.00 0.00 0.00	109 10.82
10	0 0.00 0.00 0.00	2 0.20 3.85 0.77	5 0.50 9.62 2.24	8 0.79 15.38 5.93	14 1.39 26.92 12.07	8 0.79 15.38 15.09	7 0.70 13.46 17.50	3 0.30 5.77 18.75	4 0.40 7.69 66.67	1 0.10 1.92 100.00	52 5.16
TOTAL	156 15.49	261 25.92	223 22.14	135 13.41	116 11.52	53 5.26	40 3.97	16 1.59	6 0.60	1 0.10	1007 100.00

Table J

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'HIGH' SCHOOL 'SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER35 BY OVER45

OVER35 OVER45

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
7	0 0.00 0.00 0.00	1 0.11 12.50 7.14	2 0.21 25.00 6.90	0 0.00 0.00 0.00	3 0.32 37.50 2.70	2 0.21 25.00 1.60	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	8 0.86
8	0 0.00 0.00 0.00	4 0.43 13.33 28.57	3 0.32 10.00 10.34	7 0.75 23.33 11.67	8 0.86 26.67 7.21	4 0.43 13.33 3.20	2 0.21 6.67 1.17	2 0.21 6.67 1.13	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	30 3.22
9	1 0.11 0.58 50.00	3 0.32 1.74 21.43	12 1.29 6.98 41.38	16 1.72 9.30 26.67	33 3.54 19.19 29.73	33 3.54 19.19 26.40	32 3.44 18.60 18.71	22 2.36 12.79 12.43	16 1.72 9.30 11.76	4 0.43 2.33 5.97	0 0.00 0.00 0.00	172 18.47
10	1 0.11 0.14 50.00	6 0.64 0.83 42.86	12 1.29 1.66 41.38	37 3.97 5.13 61.67	67 7.20 9.29 60.36	86 9.24 11.93 68.80	137 14.72 19.00 80.12	153 16.43 21.22 86.44	120 12.89 16.64 88.24	63 6.77 8.74 94.03	39 4.19 5.41 100.00	721 77.44
TOTAL	2 0.21	14 1.50	29 3.11	60 6.44	111 11.92	125 13.43	171 18.37	177 19.01	136 14.61	67 7.20	39 4.19	931 100.00

Table k

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'HIGH' SCHOOL 'SPECIAL-ED' TEACHERS
DECILE TAKEN OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER45 BY OVER55

OVER45 OVER55

FREQUENCY / PERCENT / ROW PCT / COL PCT	0	1	2	3	4	5	6	7	8	9	TOTAL
0	2 0.21 100.00 1.15	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.21
1	13 1.40 92.86 7.47	1 0.11 7.14 0.44	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	14 1.50
2	16 1.72 55.17 9.20	10 1.07 34.48 4.39	3 0.32 10.34 1.53	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	29 3.11
3	21 2.26 35.00 12.07	24 2.58 40.00 10.53	14 1.50 23.33 7.14	1 0.11 1.67 0.65	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	60 6.44
4	40 4.30 36.04 22.99	45 4.83 40.54 19.74	20 2.15 18.02 10.20	6 0.64 5.41 3.87	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	111 11.92
5	30 3.22 24.00 17.24	46 4.94 36.80 20.18	27 2.90 21.60 13.78	17 1.83 13.60 10.97	4 0.43 3.20 4.60	1 0.11 0.80 2.63	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	125 13.43
TOTAL	174 18.69	228 24.49	196 21.05	155 16.65	87 9.34	38 4.08	28 3.01	16 1.72	6 0.64	3 0.32	931 100.00

(CONTINUED)

Table 1

ALABAMA CIP PROJECT -- NORMING STATISTICS OF SIX AREAS
SCHOOL TYPE(ELEMENTARY, MIDDLE, HIGH)
TEACHER TYPE(SPECIAL ED, NON-SPECIAL ED)
'HIGH' SCHOOL 'SPECIAL-ED' TEACHERS
PICTLE TABLE OVER COMPLETE RANGE OF COMPSUM

TABLE OF OVER35 BY OVER45

OVER35 OVER45

FREQUENCY PERCENT ROW PCT COL PCT	0	1	2	3	4	5	6	7	8	9	10	TOTAL
7	0 0.00 0.00 0.00	1 0.11 12.50 7.14	2 0.21 25.00 6.90	0 0.00 0.00 0.00	3 0.32 37.50 2.70	2 0.21 25.00 1.60	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	8 0.86
8	0 0.00 0.00 0.00	4 0.43 13.33 28.57	3 0.32 10.00 10.34	7 0.75 23.33 11.67	8 0.86 26.67 7.21	4 0.43 13.33 3.20	2 0.21 6.67 1.17	2 0.21 6.67 1.13	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	30 3.22
9	1 0.11 0.58 50.00	3 0.32 1.74 21.43	12 1.29 6.98 41.38	16 1.72 9.30 26.67	33 3.54 19.19 29.73	33 3.54 19.19 26.40	32 3.44 18.60 18.71	22 2.36 12.79 12.43	16 1.72 9.30 11.76	4 0.43 2.33 5.97	0 0.00 0.00 0.00	172 18.47
10	1 0.11 0.14 50.00	6 0.64 0.83 42.86	12 1.29 1.66 41.38	37 3.97 5.13 61.67	67 7.20 9.29 60.36	86 9.24 11.93 68.80	137 14.72 19.00 80.12	153 16.43 21.22 86.44	120 12.89 16.64 88.24	63 6.77 8.74 94.03	39 4.19 5.41 100.00	721 77.44
TOTAL	2 0.21	14 1.50	29 3.11	60 6.44	111 11.92	125 13.43	171 18.37	177 19.01	136 14.61	67 7.20	39 4.19	931 100.00